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ABSTRACT

The Pre-Postsecondary Program (PPSP) was conducted during the 1974-75 school year at four Ohio secondary schools in order to offer a career exploration program for students in grades 11 and 12 that would be related to the high school content and provide a foundation for careers in the students' areas of interest. The report presents the evaluation of the PPSP in social science at Live Oaks Joint Vocational School and in health at Scarlet Oaks and Penta Joint vocational schools and Firestone High School. Program teachers and administrators discussed objectives for evaluation of the PPSP and developed criterion-referenced tests to assess students' achievement of the various programs' objectives. These tests were given to control groups and to PPSP students and the resulting scores analyzed and compared. Descriptions of all tests (interest, achievement, and ability) are presented for the different locations, programs, and test forms. It was found that the PPSP appears to have resulted in general achievement comparable to a traditional high school curriculum, in addition to giving some of the students specialized knowledge about their career areas. Most of the document is comprised of appendixes detailing the questionnaires, surveys, tests, and comments of administrators, teachers, parents, and students. (MF)

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PRE-POSTSECONDARY PROGRAM
EVALUATION REPORT
1974--1975

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SECTION I

PRE-POSTSECONDARY PROGRAM

Problem

The following report includes information on administrators, teachers, and students involved in the Pre-Postsecondary Program (hereafter abbreviated as PPSP) during the 1974-75 school year. The program was conducted at four centers: Live Oaks, Scarlet Oaks, and Penta Joint Vocational Schools and Firestone High School in Akron. The objective of the program was to provide a high school program for eleventh and twelfth graders in which careers are explored and related to the high school content areas which provide a foundation for those careers. As a result, students were assigned to programs where the subject matter matched their area of career interest. Since no PPSP was offered at Clark Technical School during the 74-75 school year, and some curriculum were not offered at other schools the report will include information on the four remaining programs: Social Science at Live Oaks; Health at Scarlet Oaks; Health at Penta; and Health at Firestone.

Table I (p 4) presents the number of students and teachers in each program at different times during the course of the project.

Objective

This report is considered to be the result of an essentially formative evaluation of the PPSP. Still, coming as it does at the end of the project, it includes much information found in a summative evaluation report. The objective of such an evaluation is to offer specific recommendations about the implementation of the program in general and about the program as itwas represented in the various curriculums in each of the participating schools.

Description of Activities

A workshop was held in October 1974 in which two staff members of the Bureau of Educational Research and Services met with five teachers, the teacher educator, and three administrators in the program. At this session the teachers and administrators were questioned about their ideas on the evaluation of the program. They were also asked to describe in their own words their objectives for the program. During this workshop, it was suggested that criterion referenced tests be developed to assess the extent to which students had achieved the objectives of different programs. The selection and testing of a control group was also discussed. Two questionnaires were administered at the workshop.

During November and December of 1974 and January and February of 1975 four control groups of high school seniors were selected through a process to be described in detail in Section III. In April and May of 1975, the Scholastic Testing Service EDS test and the Career Maturity Inventory were administered to these control students by a member of the evaluation team. During the same time period the same tests were administered to the PPSP students by their teachers. The resulting scores were then analyzed and compared. Results of these analyses can be found in Section I. The score received by PPSP students' in the 1975 testing were compared to those they received in 1974. The results of these comparisons are reported in Sections I and II.

Construction of criterion-referenced tests began in January 1975 with a letter to PPSP teachers (see Appendix T) asking them to generate a list of their instructional objectives in preparation for meetings with test constructors. Discussions between test developers and teachers, about what should be included in each criterion referenced test were conducted in person, on the telephone and by mail throughout February, March, and April. The tests, based in part on these discussions and partly on instructional materials provided by the teachers were administered to the PPSP students in April and May, 1975. The tests themselves (Appendices U through Y) and reports on the results are included in this report (Section II).

In May, 1975 separate meetings were held to gather information from teachers and administrators (May 2) and from students (May 20). At both of these meetings a number of questionnaires were completed by the PPSP participants, the results of which are reported in Sections I and II .

In June, 1975 a questionnaire and explanatory letter were mailed to the parents of PPSP students, asking for their evaluation of their child's experience in the PPSP and for recommendations for future programs of a similar nature. The results of this questionnaire are reported in Section I .

In July, scores on the STS and CMI were mailed individually to those students who had requested them.

Examples of the request reporting forms sent to students are included in Appendix M. Scores on the sample reporting form are, of course, fictional.

This report is divided into three major sections. The first section describes the overall implementation of the program and attempts to look at the results of the program in general by grouping data from all sources. The second section attempts to describe the program as it was conducted in the four different schools. The third section summarizes recommendations from the participants and evaluators.

Changes From the First Year

There are a number of differences between the PPSP as conducted in the 1973-1974 and the 1974-1975 school years, notably in the loss of students as detailed in Table I below. There were also some new teachers, although the number of teachers remained about the same. Although there was no attempt at a direct measure of the reasons for students leaving the program during the 1974-1975 evaluation, certain inferences can be drawn from an examination of responses to questionnaires distributed during the 1973-1974 evaluation.

As can be seen from Table I, page 4, there was some attrition of students from last year to this year. This drop in the number of students enrolled in these programs was a partial reflection of the number of programs in existence. However, it is important to note that typically the programs dropped were those which generated least satisfaction on the part of both students and parents. For example last year when students in the Firestone Engineering program responded to the question, "Would you like to be in the Program next year?" only two of seventeen students responded that they would like to reenter the program. In contrast, only one student out of eleven responding indicated that he would not like to reenter the Penta Health program.

The reasons for attrition between the various programs differ according to the program. However, in most cases, students did not wish to reenter a program that was in operation this year because of a change in their priorities, rather than a dissatisfaction with the program. Because of the small numbers of students involved and the idiosyncratic nature of the reasons, no cohesive generality can be offered for the attrition. The reasons for dropping as reported by students and parents are presented below individually by school and program.

TABLE I

Program	No. of Students Spring 1974	 Fall 1974	 Spring 1975	No. of T Spring 1974	 Fa 19
Penta - Health	11	10	10	5*	5
Firestone - Health	25	20	20	1	1
Engineering	16	2	2	1	1
Live Oaks - Social Science	16	5	3	1	1
				1*	
Scarlet Oaks - Health	19	12	10	1	1
				1*	4

*indicates part-time teachers

TABLE I

No. of Students			No. of Teachers		
Spring 1974	Fall 1974	Spring 1975	Spring 1974	Fall 1974	Spring 1975
11	10	10	5*	5*	5*
25	20	20	1	1	1
16	2	2	1	1	1
16	5	3	1 1*	1	1*
19	12	10	1 1*	1 2*	1 2*

Penta

Last year it was found that only one of eleven students did not wish to reenter the program. Of seven parents responding to the questionnaire, all wished their children to continue with the program. The student who did not wish to reenter the program indicated that he decided against being a doctor and was more interested in agriculture.

Firestone Health

Only three of twenty-five students indicated that they wouldn't like to reenter the program. Two parents of the twelve responded that they would not like their children to continue with the program. Since the questionnaires from the parents were sent back anonymously, it cannot be determined with certainty if the two parents who indicated withdrawal of their children from the program were parents of the youngsters who indicated that they would not like to be in the program next year. Both a parent and a student indicated a change in the desired profession as a reason for withdrawal. One other student indicated that what he understood about the activities for next year were different from what he would have liked; one parent indicated displeasure with the mathematics program as a reason for withdrawal.

Scarlet Health

Of fiteen students who responded, one student indicated that he would not like to reenter the program and two indicated uncertainty. Of nine parents who responded, three indicated that they would not like to have their children remain in the program. Three students indicated that they missed their home schools. Of the three, one additionally mentioned that he didn't feel he could explore things in the depth he would like. Of three parents who responded, two indicated that their children missed the home school; one responded that his youngster was not receiving the courses that were necessary for college entrance in a School of Pharmacy.

Live Oaks Social Science

Of thirteen students who indicated whether they would like to be in the program next year, almost half (six) indicated either "no" or "undecided". Of five parents who reponded, three indicated either that they would not like their children to reenter or were undecided. Of the students who indicated why they were unsure or would not come back, three indicated that they simply were not sure of their plans; one student indicated that he was missing some activities in his home school; one student didn't like the amount of independent study. One parent was undecided because of the implications the program had for college; one parent indicated a difference in "beliefs" (the exact nature was unspecified) of her child with other children and the teacher; the other parent indicated transportation problems.

In summary, at the end of last year for these four programs, 51 of 64 students (80%) indicated that they would definitely like to continue and only 20% indicated that they would not like to continue or expressed doubt over whether or not they would continue.

Live Oaks Engineering

Although this program had few students enrolled, all of the students who responded to the questionnaire (four) and the parent who responded indicated that they would like to reenter the program.

Clark Technical

This program had seniors last year, so the reentry question was highly speculative; students' responses to the question were taken in this light and not deemed valid for the present report.

Scarlet Oaks Business

Of five students who responded, three indicated they would not like to reenter; the parent who responded indicated that he was undecided about the decision for his youngster to reenter the program. The three students who indicated that they did not want to reenter said that they wanted to be secretaries. The parent indicated that he thought the students had too much free time.

Firestone Engineering

Of seventeen students two responded to the questionnaire. Fifteen said that they did not want to reenter the program. Of the five parents who responded, three did not want their children to reenter the program. Seven of the fifteen students who responded negatively indicated that they had decided not to go into engineering. Several of the other students indicated that they did not like the organization of the course.

CURRICULUM

The curricula which were constructed prior to the 1973-1974 school year were evaluated by an independent curriculum specialist. That evaluation is contained in last year's project evaluation report on pages 3 through 8.

Written curriculum packages will be prepared for the different career areas of the program during the 1974-1975 school year--health and social science, by August 31, 1975. At that time these 1974-1975 curricula will be evaluated by Dr. James A. Phillips, an independent curriculum specialist. His report will be submitted separately by October 1, 1975. Included in this report will be the results of a curriculum guidelines questionnaire administered to teachers at the May 2nd workshop.

TEACHER EDUCATION

The teacher education project was developed to introduce teachers to the concepts and objectives of the PPSP and to teach them techniques for implementing these concepts. To accomplish this task the Coordinator of the Teacher Education Project, Mr. Gerhard Stavney, used two methods, bi-monthly visits to each of the three schools, and instructional workshops. The effectiveness of these two aspects of the teacher education project and of the project's coordinator was evaluated via the administration of a questionnaire at the May 2nd workshop. In addition, the effectiveness of the February 13-14, 1975 workshop on questioning strategies was assessed with a test administered at the end of that workshop.

Workshops

Three instructional workshops were conducted during the 1974-1975 school year. The first, held August 5-23, 1974 at Columbus and Cincinnati, was to introduce three teachers new to the PPSP to the concepts of the program and to ideas and techniques taught in the previous year's workshops and visits.

The second workshop was held on October 10, 1975 at the Grove City Ramada Inn. At this workshop teachers were instructed on the use of Flanders Interaction Analysis by Dr. James A. Phillips and Frank Kunstel of Kent State University. The Flanders Interaction Analysis was then used to aid analysis of classroom instruction during subsequent visits by the teacher educator. Also, during a portion of this workshop teachers and administrators met with the evaluation team to discuss the first year's evaluation report and give suggestions for the second year's evaluation. To determine what objectives the teachers and administrators considered important, so that means could be devised to evaluate the achievement of these objectives Instrument D was administered. The group described a number of different objectives (see Appendix A for specific comments). These objectives and the rankings they received are summarized in Table II below.

Table II

Summary of Objectives Given	Frequency with which objective ranked in importance			
	1st	2nd	3rd	Total
Prepare students to enter chosen Post-secondary programs	4	2	1	7
Prepare students to make a realistic career selection	2	1	3	6
Increase student awareness	1	5	3	9
Integration of career activities and academic knowledge	3	1	1	5
Develop goal centered teaching methodology	2	0	1	3
Increase students' knowledge of subject matter	0	2	1	3

The discussion of the results of this questionnaire with the group led to several suggested additions to the evaluation plan; i.e., the use of control groups to compare to the PPSP students on academic performance and career maturity, to determine whether traditional academic objectives were being met in the PPSP as well as in comparable schools; and the use of criterion-referenced tests to assess the achievement of the diverse objectives held by the teachers in the program. These suggestions were included in the evaluation proposal, accepted, and carried out. The results will be given later in this report.

The third workshop was held February 13-14, 1975 at Owens Technical College, Toledo, Ohio. The purpose of this workshop was to assist teachers in developing questioning strategies,and Dr. James A. Phillips and Mr. Frank Kunstel presented the material to the teachers. Instrument E was devised by the evaluation team (with the help of the instructors) to measure the acquisition of information about questioning strategies by teachers at the workshop, and to ascertain the teachers' evaluation of the workshop. (see Appendix B for specific comments) Table III summarizes the results from Instrument E . This test/questionnaire was not administered by the evaluation team, and some confusion as to the meaning of questions 4a, 4b, and 5 was reported. This confusion may explain some of the incorrect responses to these questions.

As has been mentioned, a final workshop was held May 2, 1975 at the Columbus Hospitality Inn to gather information from the teachers and administrators in the program for the evaluation. At this time Instrument F was administered to determine the teachers' assessment of the Teacher Education Project (See Appendix G). Responses to this questionnaire indicated that in general, teachers found the workshop very helpful or at least adequate, except in "providing classroom ideas and materials" where some "very little help" responses were given. Table IV summarizes the results of this questionnaire and will be presented after the discussion of visits.

On-Site Visits

The teacher educator, Mr. Gerhard Stavney, visited each of the PPSP program every-other-week to give help and direction to the teachers. The teachers attending the May 2nd workshop were given Instrument F concerning the teacher education project. Mr. Stavney was not present when the form was given to the teachers, who's responses to the instrument are summarized in Table IV.

TABLE III

Responses to	A GREAT DEAL	QUITE A BIT	MODERATE AMOUNT	A LITTLE	A LOT	?	NOTHING	NO RESPONSE	CONVERGENT PRODUCTION	DIVERGENT PRODUCTION	COGNITION
1. How much did you learn about the purpose and types of class discussion.	1	9	1	0			0				
2. To what extent did the workshop help you relate purposes and types of class discussion to your own goals as a teacher?	0	9	2	0			0				
3. How much has your ability to relate higher level questionning strategies and thinking skills to your teaching program improved as a result of the workshop?	1	4	3		1	1	0	1			
4a. Identification of the question "What were the three causes of the Civil War?								1	*3	1	5
4b. Identification of the question "What might the world be like today if Germany had won the war?								1	1	*6	

TABLE III

	A GREAT DEAL	QUITE A BIT	MODERATE AMOUNT	A LITTLE	A LOT	?	NOTHING	NO RESPONSE	CONVERGENT PRODUCTION	DIVERGENT PRODUCTION	COGNITION	EVALUATION	COGNITION-MEMORY	MEMORY
	1	9	1	0			0							
e r	0	9	2	0			0							
ty	1	4	3		1	1	0	1						
e								1	*3	1	5			1
								1	1	*6		3	0	

*indicates the correct response

Inspection of the data indicate that the teachers found the teacher educator's visits helpful in general and in the listed specific areas of concern, with possible exception of "providing classroom ideas and materials" where visits were rated as only being "some help" three times and "very little help" once.

A review of teacher assessment of both aspects of Teacher Education Project shows that, in general, they found it helpful. The only exception to this judgment is in the area of providing classroom ideas and materials. The teachers were less sure that the Teacher Education Project assisted them in this area.

The Coordinator of the Teacher Education Project discusses several important aspects of the project in his Final Report. A summary of some of the points made in this report is included here to provide a more complete review of the Teacher Education Project.

The PPSP Instructor Training Final Report for 1974 (Appendix A) indicates that one of the hypotheses being tested in the teacher education program was the usefulness of one of the Ohio Vocational Education Teacher Education plans to PPSP program. It would appear not to be applicable First of all, in a Ohio Vocational Education Teacher Education plan, a vocational education teacher is required to be part of the teacher education program as part of his or her certification requirements. Secondly, the vocational teacher is receiving college credit for work being done. Both of these factors make the vocational teacher more receptive than PPSP teachers to the work required as part of the teacher education program. Probably the most significant factor though is the fact that the Vocational Education model is for teachers that are new to teaching and have no experience in teaching or in education classes. The opposite was true in the Pre-Postsecondary Program. The teachers were experienced and most had several years of successful teaching experience. There was resentment of the every-other week visitations. This resentment was partially overcome the second year when the Coordinator of Teacher Education used the Flanders Interaction Analysis System and emphasized it as a sophisticated means of the teachers analyzing their teaching strategies. It appears that the emphasis with teachers who have had teaching experience must be much different than with the beginning vocational education teacher.

Another reported weakness of the teacher education program was in the coordination of the various projects. As a result of the people developing curriculum during the summer of 1973 not really understanding what the state department wanted, there are virtually no curriculum materials

TABLE IV

Frequencies of Responses to Questions Regarding Teacher Educator's Assistance

GENERAL EVALUATION

In general, rate the teacher educator's visits.

6 Very helpful
1 Adequate
2 Some help
0 Very little help
1 (Not applicable to my situation)

In general, rate the teacher education seminars.

5 Very helpful
3 Adequate
1 Some help
0 Very little help
1 (I wish I could have attended others)

SPECIFIC AREAS	Rating of Visits		Rating of Seminars
Questioning Strategies	6	Very helpful	5
	2	Adequate	2
	0	Some help	1
	0	Very little help	0
Classroom Discussion	5	Very helpful	4
	1	Adequate	1
	1	Some help	0
	0	Very little help	1
	2	(not applicable)	-
	-	(did not attend)	1
Flanders Interaction Analysis	6	Very helpful	6
	1	Adequate	2
	0	Some help	0
	0	Very little help	0
	1	(not applicable)	-
Providing Classroom Ideas and Materials	2	Very helpful	2
	2	Adequate	1
	3	Some help	1
	1	Very little help	2
	1	(not applicable)	-
	-	(did not attend)	1

for teachers to use. (Penta is an exception to this statement). Secondly, there was nothing written into the contracts of the school districts about teacher education nor, in most cases, was anything verbally said. As a result the Director of the Teacher-Education Project and the Coordinator of Teacher Education had to tell people what their role was to be. In light of these factors, it is a tribute to the dedication of the teachers that they accepted and made use of the teacher-education program.

Laboratory Facilities

At the May workshop, Instrument B was administered to all teachers present regarding the adequacy and use of laboratory equipment. Responses to one question on the instrument indicate that, in general, the teachers felt they had adequate laboratory facilities. (see Table V)

TABLE V

Responses to "How adequate are your laboratory facilities for the Pre-Postsecondary Program."

4	Had all the equipment needed
2	Had the equipment necessary 75% of the time
1	Had the equipment necessary 50% of the time
0	Had the equipment necessary 25% of the time
1	Completely inadequate - no money for textbooks
1	Blank

Even though six of the nine teachers indicated that they had the necessary equipment 75% of the time or better most teachers could still think of useful items they could use but did not have. This probably shows only that teachers could think of ways to improve already adequate facilties. One teacher did mention that "...a great deal of money was sepnt on equipment which was never used." This was not a typical problem but could probably be avoided by careful coordination between curriulum planning and equipment purchase.

Advisory Committee

Instrument C was administered to teachers at the May workshop to determine the extent of use of the Advisory Committee. Responses to this questionnaire indicated that teachers had not made better use of their Advisory Committees this year. Several were not aware that such a committee existed, or thought the concept of an Advisory committee was not applicble, to the subject matter they taught. Where the Advisory Committee was seen as useful, it was in the area of field experiences. The three teachers who showed a knowledge of the members of their Advisory Committee appeared to have utilized them in providing field experiences for students. Table VI below gives a good indication of how little the Advisory Committee was used considering that it is difficult to get advice without personal contact.

TABLE VI

Responses to "How much personal contact did you have with the advisory committee of its members?

0	Once a week
0	Once a month
2	Less than once a month
4	None
1	"One meeting in two years"
1	"?"
1	"Not applicable"

ADMINISTRATION

Four methods were employed in the evaluation of the administration of the PPSP. The first was a questionnaire, Instrument A, administered to teachers at the May 2 evaluation workshop. This instrument was designed to assess the amount and type of assistance provided to teachers by local administrators and the State Department of Vocational Education. (See Appendix D for specific responses). The questionnarie was to be signed. Teachers' responses indicated that their local administrators had given them assistance and that this help was regarded as helpful. In all teachers listed twenty-one different ways in which administrators had assisted them. Of the twenty-one, twelve were evaluated as having been "very helpful", nine as "somewhat helpful", and one as "not helpful". Four of the comments indicated that administrators were helpful by allowing the teacher to work independently, that is, by not interfering in teaching activities. Teachers also indicated that, in general, they had found the assistance of the State Department of Vocational Education helpful. Of fourteen descriptions of assistance from the State Department, seven were judged to be "very helpful", five to be "somewhat helpful" and two were not evaluated. It should be noted however, that two "very helpful" judgments were attached to assistance described as "none at all", a further indication that some teachers appreciated not being interfered with.

At the same May 2nd workshop a second questionnaire dealing with the administration was completed by teachers. Instrument L did not ask for the teachers' names and was thus more anonymous. (See Appendix C).

Items in the questionnaire were divided as follows: job assignments (items 1-3), budgeting (4-5), Local administration (7-15 and 24-27), students (16-19) advisory committee (20 and 21), and general facilities (22 and 23).

Four of the nine teachers indicated that the organizational structure was in written form, two indicating that it was moderately effective, one that it was ineffective and one that it did not exist in practice. Teachers felt that staffs were assigned on the basis of training and experience. Five of the teachers indicated that only oral job descriptions were used in their schools. Faculty appeared to have little or no involvement in budgeting, and funds were considered by five to be less than adequate. However, all teachers felt that they had adequate time alloted for teaching.

Supervisors were seen as supportive, willing to ask for and use teachers' advice, and giving of adequate and effective time to the program. Administrative decisions were seen as consistent with the goals of the program, and all teachers felt that communication with administrators was frequent enough, and effective.

Teachers were generally pleased with the caliber of students in the program this year, feeling that they were above average in ability, and able to make realistic career choices.

Most of the teachers felt that the advisory committee should be consulted more, and all felt that facilities were adequate. Eight of the teachers indicated that materials were available to them but one teacher indicated that they were "never" available. Teachers agreed that administrative support had been good except in the area of program publication. Three teachers indicated that publicity had been poor.

Responses to both administration questionnaires seem to show that teachers feel that their supervisors are doing a good job.

A third method of evaluating the administration of the program involved a discussion with administrators of the May 2nd workshop while teachers were not present. Appendix J reports comments made by administrators during this discussion. Most of the discussion revolved around suggestions the administrators would make based on their experience with the program over the last two years. The administrators agreed that the most important aspect to the success of such a program is the selection of teachers and many of their comments concern criteria for this selection and methods for carrying out the selection. The participants also were concerned with how to evaluate what had actually occurred in the PPSP, and made a number of suggestions including the use of a single curriculum guide, but emphasized the importance of carefully planning this curriculum. Student selection, and gaining the cooperation of high schools were also discussed. Both administrators felt that a program similar to the PPSP could be conducted within a regular comprehensive high school.

In addition to the above questionnaires and discussion, on-site visitations to the three school systems and the Ohio State Division of Vocational Education were conducted by an administrative consultant, Dr. Robert Wilson. His report follows.

Results of the On-Site Visitation by the Administrative Consultant (prepared and written by Dr. Robert Wilson)

This evaluation of the administrative aspects of the Pre-Postsecondary school program was conducted through on-site visitations to the centers and to the Vocational Education Division of the State Department of Education. Evaluations consisted of observations and interviews with the respective persons in charge of administering the programs.

Four observations summarize the administration of these programs:

1. Little or no change in the administrative tasks or their performance form the 1973-74 evaluation.

2. The programs became institutionalized the second year, administrators and faculty seeming to take the program in stride.

3. Enthusiasm for the concepts embodied in the experimental program remained high at all sites with the possible exception of the State Department of Education, the hopes there undoubtedly dimmed by little prospect for further funding.

4. Proper staffing of the classroom and field experiences for participating students made the big difference in the success of the various programs.

Administrative Tasks

The administrative tasks of personnel, budgeting and fiscal control, purchasing and supply, student records, and supervision remained largely as they had the first year of the program with the exception that performance seemed to be smooth and routine. The "bugs" encountered in the hasty installation of the first year had been ironed out and the administrators at all three centers reported "no problems". The budgetary allocations for the year seemed adequate for needs.

The advisory committees functioned well at two centers but decreasingly so at the third because of the impending termination of the program.

Communication to the public about the programs continued low key. However, State Department officials expect to release a report on the two-year experiment this summer or fall.

Staffing for the program, as with any instructional venture was the major determinant of success. An effective teacher who stayed through the two years was the prime mover at one center; whereas a change in teachers at another center accounted for much of its progress; the loss of a good teacher at the third center hurt its effectiveness.

Latitude for local initiative continued the second year with few directives coming from the state level.

The resistance from area sending high schools diminished during the second year. While this may have resulted from the knowledge that programs were to be phased out, a most promising report came from the Great Oaks area where some sending districts were reported to be initiating comparable programs for career-minded professionals modeled after the Great Oaks plan.

Obviously, the greatest "proof of the pudding" is found in the Akron experience where the programs next year have been expanded to six professional areas in the new central Hower High School with the Akron Board of Education assuming full responsibility for funding. More authority for directing the Pre-Postsecondary program will be delegated to the building principal. Akron administrators attribute much of their success to ready availability of university resources.

RESULTS FROM PARTICIPANTS

TEACHER QUESTIONNAIRES

At the May workshop teachers completed two questionnaires which asked them to evaluate the PPSP in general. (See Appendices H and I).

The first, Instrument I, asked teachers to assess the program organization and teaching concept of the PPSP. In general, the teachers liked working with small classes and being able to provide field experiences in a career oriented program. Several teachers mentioned lack of variety, either in working with the same students for two years or in the subject matter of the courses, as a weakness of the program. Selection of students was also mentioned as a weakness of the program. Suggestions for improvement included: allowing PPSP students to take college courses for variety, more advanced planning in the selection of students and in preparing the curriculum, and not putting a PPSP in a vocational setting.

Table VII summarizes the teachers' judgments of the program.

TABLE VII

Responses to "Overall, how successful would you rate the Pre-Postsecondary Program?"

1	Very Successful
6	Successful
1	Somewhat Successful
0	Mildly Successful
0	Not Successful

In general, it appears, from their responses to Instrument I, that at least some of the goals of the program had been met.

In the second form, which concerned the general evaluation of the PPSP, Instrument J , the teachers assessed the implementation of PPSP concepts as well as offering recommendations for future programs.

Basically, the teachers' responses to Instrument J indicate a positive evaluation of both the concept and implementation of the PPSP. The following is a summary of their

The separation of students according to occupational interest. All of the teachers felt this was an essential part of the PPSP concept, but two teachers said that the area of occupational interest should not be too narrowly defined.

The idea of a 4½ hour block of time to devote to a program such as PPSP. The teachers were divided in their responses to this question. Several felt that a shorter time period would work as well, others that more time would be better. One third of the teachers mentioned that this was too much time for one instructor to organize into instructive activities.

Fieldwork experiences (and of what kind) as an integral part of PPSP. All of the teachers were positive about this aspect of the program. They felt that fieldwork was, as one teacher put it, "very much the essence of the program." In addition, one teacher mentioned the difficulty of organizing meaningful work experience.

The best location or type of school for the PPSP Program? Six of the teachers felt that a PPSP would best be located in a traditional high school. The remaining three suggested either a college campus or near a hospital college or university. One teacher remarked that location at a vocational school was not advantageous.

Integration of "academic" knowledge with information and skills relevant to the chosen occupation. The majority of the teachers felt that this is an essential ingredient of a PPSP. Other comments mentioned the difficulties involved in accomplishing such an integration at the high school level.

Selection of students. The teachers made a wide range of suggestions in regard to selecting students including; give final say to PPSP instructor, students should be homogeneous in academic ability and motivation, use other means of assessment than grades and counselor recommendations, and generally plan selection procedure very carefully.

Selection of teachers. Teachers indicated that PPSP teachers should: have a broad educational and vocational background, be specialists, have a knowledge of teaching and the subject matter, be truly dedicated to helping young people, and be willing to spend a lot of time with the students.

Curriculum development. The teachers were divided in their responses to this question possibly because some had used a prepared curriculum guide and some had not. Several teachers felt that teachers who had been in the PPSP could be helpful in planning future curriculum and others felt that the curriculum which had already been prepared was very good.

Curriculum utilization. Several teachers indicated that they had used the curriculum as an aid or general guide others that they had made a more thorough use of it and still others said that they had not used the curriculum at all.

Organizational structure. Again there was a diversity of opinion, ranging from a rating of excellent to a statement by one teacher that there had not been an organizational structure.

Evaluation. Two of the teachers indicated that the evaluation was fine, one that it was adequate, one that it appeared poorly planned and several gave no response at all. An interesting comment, that evidently refers to the criterion-referenced testing, said that the students didn't see the need for a "year-end evaluation by the KSU testing service." This comment and the failure of several of the teachers to respond to this question at all indicates that perhaps the evaluation team should have spent more time explaining the purposes of various aspects of the evaluation.

PARENT QUESTIONNAIRES

In the early part of June, a letter was sent to parents requesting their suggestions and comments about the program. In July a follow-up letter was sent. Of 45 forms sent 15, or 33% were returned.

Parents were asked to assume the role of an educational planner in answering the questions; that is, although the questions were structured, parents were asked to determine from their experiences with the program the type of personnel, timing, and facilities that would probably result in the best resultant program. It was indicated that individual responses would be left anonymous.

Initially parent forms were divided into the programs in which their children had been enrolled. Through this procedure, it was found that there were differences in the responses of how the program should be structured probably based on the individual characteristics of the program in which the children were actually enrolled. For example, parents were asked whether or not teachers in the program should have actual experience in the profession that was the choice of the students; all parents of Scarlet Oaks students responded "Yes"; five of the six parents of students enrolled in the Penta program responded negatively. In the Scarlet Oaks system, the major teacher had been a nurse, to the best of the evaluators' knowledge of the Penta program, none of the teachers had been in a health-related profession. Consequently, the objective of the questionnaire, parental input on the structuring of a program, may not be fully met by the responses since it appears that the "ideal" model formulated by parents was very much bound to the reality of the program in which their children had actually been enrolled.

The parents of the students in the Scarlet Oaks system were relatively consistent in what they regarded as the best choice of ideal personnel, setting, and materials and also in what could be regarded as an overall evaluation of the program.

Generally parents felt that the students enrolled should be average or above average in ability and interested in the broad field of health. The parents thought teachers should have had some actual experience in a health-related profession and also some previous teaching experience. The parents believed that their children had had a good learning experience with the program.

Parents of students enrolled at Penta believed that students interested in the field of health and who also had "college-potential" should be enrolled. Most parents did not believe that actual experience of the teacher in a profession was necessary. As with most of theparents, the field experience portion of the program was seen by most Penta parents as invaluable. Most of the parents indicated that they would enroll another child in the program again, if the students expressed interest and had the ability.

The parental response from Firestone seemed to indicate that most of the parents looked upon ability as important but that is should be secondary to desire; that is, if a student was somewhat above average but showed interest in the field, it was thought that the program would still be of benefit. Parents were divided on the matter of how important career experience was for the teacher of the program; however, most were in favor of this experience. In addition, most indicated that the teacher for the program should be an experienced teacher. Only one of the four parents who responded to the question regarding whether the learning of the students had met initial expectations responded in a positive manner, and only one of four parents indicated that he would enroll, without qualification, another child in the program.

Summary

Most of the parents indicated that students should be selected who are at least of average ability but who also express interest and/or desire to be in a health profession. The ideal teacher was regarded as one who had experience in teaching in addition to having some experience in a health-related profession. Parents suggested various methods of informing students about the program: newspapers, visits to schools, and announcements made by teachers and counselors. Parents were in favor of varied field experiences that definitely included on-site observation. Other comments made were either specific to the school in which the program had been located or were so disparate that there appeared to be no general pattern. Copies of the Parent Questionnaire, cover letters, and parents' comments are included in Appendix H.

STUDENT QUESTIONNAIRES

Most of the PPSP students attended a workshop in May during which they completed Instrument G and K by members of the evaluation team. Some of the Firestone PPSP students who were not able to attend the workshop in Columbus were given the questionnaires at Firestone by another member of the evaluation team. Reports of students' responses are given by school, in Section II. A summary of all PPSP students' responses is given below.

Instrument K

A copy of Instrument K and of students' reponses to it can be found in Appendix K . Students from the three programs represented (no students from the Live Oaks PPSP could attend the workshop so that all the opinions represented here are from health students) agreed that PPSP students should be above average in academic ability and show motiviation. Most students felt that the vocational interests of all students in a single PPSP should center on the same general area of interest, but opinion on how specific the career field should be was varied.

Student Selection

In evaluating the method of student selection at their own PPSP, students said that there should have been more publicity, that slightly more stringent academic standards could have been imposed if there had been more students interested in attending the PPSP. The students suggested the following ways of publicizing the PPSP: through high school counselors, newspaper stories, speakers to sophomore classes, especially science classes, speakers to assemblies of all students, and the dessimination of pamphlets. To identify appropriate students the use of vocational and ability tests, as well as interviews, was suggested.

Teacher Selection

The students' judgment of what characteristics a successful PPSP teacher should have seemed to depend on what program the student had attended. To some students, interest in the program was most important, to others advanced academic preparation or vocatonal background was most important.

In assessing the effectiveness of teacher selection at their own PPSP's student comments focused on teacher attitude, teaching ability, and knowledge of subject matter in that order. There seemed to be agreement that a good

PPSP teacher should be especially interested in the program and its students. Most students either criticized teacher selection because some of the teachers lacked enthusiasm and praised those teachers who had been more involved and interested. Students made the following suggestions: choose teachers with some training in guidance and counseling who would be able to help students in fieldwork and career selection, choose teachers with advanced training in math and science for health curriculum, especially if this was combined with work experience in the health field, and, form a panel of persons from the career area to participate in the selection of teachers.

Materials

Students felt it important that materials chosen for a PPSP be career-related since laboratory equipment was essential to providing "hands-on" experiences. It was again suggested that people from the health field be consulted in choosing materials and texts. Selection of materials should also be closely related to the curriculum as is shown by the experience at Firestone where an expensive piece of equipment (a programmable calculator) was not utilized.

Organization

Students' comments point up two important organizational concerns for a successful PPSP: arrangement of field experiences, and coordination with the home school. As students agreed that field experiences were perhaps the most important aspect of the PPSP they also felt that proper selection and scheduling of fieldwork is essential. The Scarlet Oaks students were happy with this aspect of their PPSP because field experiences were assigned based on personal counseling with the instructor, and were also flexible. Students in the other programs felt that field experiences were neither tailored to their individual needs nor well integrated with class work. Several students even indicated that, on occasion, some students stayed at home on field days because they had not been assigned a field placement. The successful organization of the field experience portion of the PPSP appears to be essential to the success of a program. Problems of coordination with the home school occurred in the two programs conducted at central locations, but not at Firestone which was the home school for most of the PPSP students. Penta and Scarlet Oaks students either had trouble with transportation or communication of information because they were not at their home schools.

Academic Program

Responses to questions about integration of the academic portion of the PPSP with field experiences show a surprising unanimity. Students agreed that integration would be nice, and that instructors had tried to a greater or lesser degree to achieve this, but that, at the high school level such integration was very difficult, if not impossible, to accomplish. As for integrating different academic subjects students felt that this could be done with some subjects such as math and science, but not with others and would require careful planning and selection of appropriate materials. Students in all three programs felt that they had learned more in the PPSP than they would have in a traditional program, and, in most cases, as much as they had expected to learn.

PPSP Concept

Students felt that it was a good idea to organize a high school curriuclum around a particular vocational interest, such as health, but did not think that this curriculum necessarily needed be presented at a vocational school. It was suggested that a centralized location might be necessary to gather enough students who were interested in one field, but that this central place could be a comprehensive high school where PPSP students could take some regular classes such as English and History with other students, but would take special science, math and fieldwork classes with PPSP students.

Most students indicated that they had entered the PPSP because of the opportunities for field experiences. Others said they primarily wished to get away from their home school for some reason. Most of the responses indicated that students felt the essential aspects of a PPSP to be, in order of priority: well-organized field experiences, enthusiastic and able teachers, integration of academic and field experiences, and the availability of essential materials and resources.

INSTRUMENT G

This questionnaire was administered to all PPSP students at the May workshop in Columbus, and to those Firestone P students who could not attend, by members of the evaluation team. None of the three students in the Live Oaks PPSP were available to complete the form at the time. Teachers were not present during the completion of this form. A copy of the instrument and of students' comments is included in Appendix L.

Tables VIII, IX, and X give the frequencies and percentages of responses to the multiple choice items. Table XI gives the means and standard deviations of responses to these items. Answers to these questions indicate that the degree to which aspects of the PPSP concept were represented differed as a function of the schools where the program was implemented. Of the three programs, the responses of the students indicated that the PPSP concept had been most fully implemented at Scarlet Oaks and least fully at Firestone. The discrepancy might be due, in great part, to the fact that, at Firestone, the PPSP was instituted within a comprehensive high school. The Firestone PPSP instructors' primary responsibility was not to the coordination of the PPSP, but to their regular teaching activities. Evidence by this can be seen in students' answers to question 6 of Instrument G (see Table VIII). While 100% of the Scarlet Oaks students said that they spent about four and one half hours each day with the PPSP teachers, and 62.5% of the Penta students said the same, 94.11% of the Firestone students said they did not spend that much time each day with PPSP teachers.

The same pattern can be detected in the answers to other multiple choice items. While all the Scarlet Oaks students, and 87.5% of the Penta students stated that classwork had been combined with career activities 75% or more of the time, all of the Firestone students said that activities and classwork had been combined 50% of the time or less.

To the question of how much of the time they were allowed to work at their own pace, 75% of the Penta students, and 62.5 of the Scarlet Oaks students said they worked at their own speed, 75% or more of the time. Only 11.76% of the Firestone students said this.

It is interesting that, although their reports of what occurred in their program differ markedly the Firestone students are in general agreement with the students from Penta and Scarlet Oaks about the importance of the different features of the PPSP concept as shown in Table IX , with the possible exception of the 4 1/2 hours block of time which 34% of the Firestone students didn't find either important or essential as the Scarlet Oaks and Penta students did.

Answers to the remainder of the multiple choice items continue to show a similar difference between the Firestone PPSP, and the Penta and Scarlet Oaks PPSPs. The latter two programs would appear to have been more completely organized around the PPSP concept.

Students' evaluation of the PPSP's overall success was good. Students responses to this question are shown in Table X . Again, it is evident that students at Penta and Scarlet Oaks thought the program more successful than did the students at Firestone.

From the written comments, it appears that students most often thought the field experiences were the most positive aspect of the program. Also mentioned as positive aspects, in order of frequency were: the quality science classes, the career relevance of learning experiences, the quality and attitude of some of the teachers, and the open individualized classroom format.

Student comments about the weakest feature of the programs were diverse but seemed frequently to relate to the ability and attitude of some of their teachers. PPSP students appear to expect a lot of their teachers. When a teacher meets or exceeds their expectations they are full of praise, and can often describe characteristics that might identify similar teachers in the future, but if a teacher doesn't do an adequate job, (perhaps because of lack of academic training, teaching ability, "interested" attitude or any combination of these) they seem to simply repeat that better teachers are needed with no explanation of what makes a better teacher for a PPSP.

Further analyses of the results from Instrument G can be found in Section II in the discussions of the separate programs.

TABLE VIII

Frequencies and Percentages of Responses to Questions 6-11 on Instrument

Questions	answer	PENTA		SCARLET OAKS		FIRESTONE	
		F	%	F	%	F	%
6. "Do you spend about 4 1/2 hours each day with the teachers in the program?"	Yes	5	62.5	8	100	1	5.88
	No Comment	3	37.5	0	0	0	0.00
	No	0	0.0	0	0	16	94.11
7. "During what percentage of the time is students' classwork combined with activities that that are similar to those of professionals in their field?"	0%	0	0.0	0	0	4	23.52
	25%	0	0.0	0	0	11	64.71
	50%	1	12.5	0	0	2	11.76
	75%	4	50.0	0	0	0	0.00
	100%	3	37.5	8	100	0	0.00
8. "During what percentage of the time are students allowed to work at their own speed?"	0%	0	0.0	0	0	5	29.41
	25%	1	12.5	2	25.0	5	29.41
	50%	1	12.5	1	12.5	5	29.41
	75%	3	37.5	4	50.0	2	11.76
	100%	3	37.5	1	12.5	0	0.00
9. "What percentage of visits are to places where people do the kinds of work in which students are interested	0%	0	0.0	0	0	1	5.88
	25%	0	0.0	0	0	5	29.41
	50%	0	0.0	0	0	9	52.94
	75%	4	50.0	1	12.5	0	0.00
	100%	4	50.0	7	87.5	2	11.76

TABLE VIII

d Percentages of Responses to Questions 6-11 on Instrument G

		PENTA		SCARLET OAKS		FIRESTONE		TOTAL	
	answer	F	%	F	%	F	%	F	%
	Yes	5	62.5	8	100	1	5.88	14	42.42
	No Comment	3	37.5	0	0	0	0.00	3	9.09
	No	0	0.0	0	0	16	94.11	16	48.48
"									
	0%	0	0.0	0	0	4	23.52	4	12.12
	25%	0	0.0	0	0	11	64.71	11	33.33
	50%	1	12.5	0	0	2	11.76	3	9.09
	75%	4	50.0	0	0	0	0.00	4	12.12
t	100%	3	37.5	8	100	0	0.00	11	33.33
	0%	0	0.0	0	0	5	29.41	5	15.15
	25%	1	12.5	2	25.0	5	29.41	8	24.24
	50%	1	12.5	1	12.5	5	29.41	7	21.21
	75%	3	37.5	4	50.0	2	11.76	9	27.27
	100%	3	37.5	1	12.5	0	0.00	4	12.12
	0%	0	0.0	0	0	1	5.88	1	3.03
	25%	0	0.0	0	0	5	29.41	5	15.15
	50%	0	0.0	0	0	9	52.94	9	27.27
	75%	4	50.0	1	12.5	0	0.00	5	15.15
	100%	4	50.0	7	87.5	2	11.76	13	39.39
d									

TABLE VIII

Frequencies and Percentages of Responses to Questions 6--11 on Instrumen

Question	answer	PENTA		SCARLET OAKS		FIRESTONE	
		F	%	F	%	F	%
10. "During what percentages of the time do students work on classwork and activities that meet their particular needs, interests, and career goals?	0%	0	0	0	0	1	5.88
	25%	0	0	0	0	5	29.41
	50%	0	0	0	0	9	52.94
	75%	4	50.0	1	12.5	0	0.00
	100%	4	50.0	7	87.5	2	11.87
11. "During what percentage of time is academic knowledge applied to the students' career area?"	0%	0	0	0	0	5	29.41
	25%	0	0	0	0	6	35.29
	50%	0	0	0	0	1	5.88
	75%	5	62.5	2	25.0	3	17.64
	100%	3	37.5	6	75.0	2	11.76

TABLE VIII

Percentages of Responses to Questions 6-11 on Instrument G

	PENTA		SCARLET OAKS		FIRESTONE		TOTAL	
answer	F	%	F	%	F	%	F	%
0%	0	0	0	0	1	5.88	1	3.03
25%	0	0	0	0	5	29.41	5	15.15
50%	0	0	0	0	9	52.94	9	27.27
75%	4	50.0	1	12.5	0	0.00	5	15.15
100%	4	50.0	7	87.5	2	11.87	13	39.39
0%	0	0	0	0	5	29.41	5	15.15
25%	0	0	0	0	6	35.29	6	18.18
50%	0	0	0	0	1	5.88	1	3.03
75%	5	62.5	2	25.0	3	17.64	10	30.30
100%	3	37.5	6	75.0	2	11.76	11	33.33

TABLE IX

Frequencies and Percentages of Responses to Questions 6-11 on Instrumen
Regarding the Importance of Aspects of the PPSP

		PENTA		SCARLET OAKS		FIRE
Questions	Response	F	%	F	%	F
6. How important is it that students spend about 4½ hours each day with teachers in the program?	essential	5	62.5	3	37.5	3
	important	0	0.0	5	62.5	5
	take it or leave it	0	0.0	0	0.0	3
	unimportant	0	0.0	0	0.0	2
	unnecessary	3	37.5			3
7. How important is it that students' classwork be combined with activities that are similar to those of professionals in their field?	essential	5	62.5	7	87.5	6
	important	3	37.5	1	12.5	7
	take it or leave it	0	0.0	0	0.0	2
	unimportant	0	0.0	0	0.0	2
	unnecessary	0	0.0	0	0.0	0
8. How important is it that students be allowed to work at their own speed?	essential	2	25.0	4	50.0	2
	important	4	50.0	3	37.5	11
	take it or leave it	2	25.0	0	0.0	3
	unimportant	0	0.0	0	0.0	1
	unnecessary	0	0.0	0	0.0	0
				1	12.5	
9. How important is it that	essential	4	50.0	5	62.5	8
	important	3	37.5	3	37.5	8
	take it or leave it	0	0.0	0	0.00	1
	unimportant	0	0.0	0	0.0	0
	unnecessary	0	0.0	0	0.0	0
		1	12.5			

TABLE IX

Percentages of Responses to Questions 6-11 on Instrument G
garding the Importance of Aspects of the PPSP

		PENTA		SCARLET OAKS		FIRESTONE		TOTAL	
	Response	F	%	F	%	F	%	F	%
hat	essential	5	62.5	3	37.5	3	17.64	11	33.33
	important	0	0.0	5	62.5	5	29.41	10	30.30
h am?	take it or leave it	0	0.0	0	0.0	3	17.65	3	9.09
	unimportant	0	0.0	0	0.0	2	11.76	22	6.06
	unnecessary	3	37.5			3	16.65	6	18.18
hat	essential	5	62.5	7	87.5	6	35.29	18	54.54
e	important	3	37.5	1	12.5	7	41.18	11	33.33
ies	take it or leave it	0	0.0	0	0.0	2	11.76	2	6.06
s	unimportant	0	0.0	0	0.0	2	11.76	2	6.06
	unnecessary	0	0.0	0	0.0	0	0.00	0	0.00
hat	essential	2	25.0	4	50.0	2	11.76	8	24.24
o	important	4	50.0	3	37.5	11	74.71	18	54.54
ed?	take it or leave it	2	25.0	0	0.0	3	17.65	5	15.15
	unimportant	0	0.0	0	0.0	1	5.88	1	3.03
	unnecessary	0	0.0	0	0.0	0	00.00	0	0.00
				1	12.5				
hat	essential	4	50.0	5	62.5	8	47.06	17	51.51
	important	3	37.5	3	37.5	8	47.06	14	42.42
	take it or leave it	0	0.0	0	0.00	1	5.88	1	3.03
	unimportant	0	0.0	0	0.0	0	0.00	0	0.00
	unnecessary	0	0.0	0	0.0	0	00.00	0	0.00
		1	12.5					1	3.03

TABLE IX (cont'd)

Questions	Response	PENTA F	PENTA %	SCARLET OAKS F	SCARLET OAKS %	FIRE F
10. How important is it that students work on classwork and activities that meet their particular needs, interests, and goals?	essential	6	75.0	7	87.5	6
	important	2	25.0	1	12.5	10
	take it or leave it	0	0.0	0	0.0	1
	unimportant	0	0.0	0	0.0	0
	unnecessary	0	0.0	0	0.0	0
11. How important is it that academic knowledge be applied to the students' career area	essential	5	62.5	6	75.0	5
	important	3	37.5	2	25.0	7
	take it or leave it	0	0.0	0	0.0	4
	unimportant	0	0.0	0	0.0	0
	unnecessary	0	0.0	0	0.0	1

TABLE IX (cont'd)

		PENTA		SCARLET OAKS		FIRESTONE		TOTAL	
	Response	F	%	F	%	F	%	F	%
t	essential	6	75.0	7	87.5	6	35.29	19	57.57
	important	2	25.0	1	12.5	10	58.82	13	31.39
	take it or leave it	0	0.0	0	0.0	1	5.88	1	3.03
	unimportant	0	0.0	0	0.0	0	0.00	0	0.00
	unnecessary	0	0.0	0	0.0	0	0.00	0	0.00
t	essential	5	62.5	6	75.0	5	29.41	16	48.48
	important	3	37.5	2	25.0	7	41.18	12	36.36
'	take it or leave it	0	0.0	0	0.0	4	23.53	4	12.12
	unimportant	0	0.0	0	0.0	0	0.00	0	0.00
	unnecessary	0	0.0	0	0.0	1	5.88	1	3.00

TABLE X

Frequencies and Percentages of Responses to Item V of Instrument G
"Overall, how successful do you consider the PPSP?"

	PENTA		SCARLET OAKS		FIRESTONE	
	F	%	F	%	F	%
Very Successful	7	87.5	6	75.00	0	0.00
Successful	1	12.5	1	12.5	7	41.17
Somewhat Successful	0	0.0	1	12.5	3	17.64
Mildly Successful	0	0.0	0	0.0	4	23.52
Not Successful	0	0.0	0	0.0	3	17.64

TABLE X

and Percentages of Responses to Item V of Instrument G,
all, how successful do you consider the PPSP?"

PENTA		SCARLET OAKS		FIRESTONE		TOTAL	
F	%	F	%	F	%	F	%
7	87.5	6	75.00	0	0.00	13	39.39
1	12.5	1	12.5	7	41.17	99	27.27
0	0.0	1	12.5	3	17.64	4	12.12
0	0.0	0	0.0	4	23.52	4	12.12
0	0.0	0	0.0	3	17.64	3	9.09

TABLE

Means and Standard Deviations of Responses on Instrument G to Questions Con
Percent of Time Spent in Aspects of School Work and Importance (I) of These

(Students chose 100, 75, 50, 25 or 0 to percent questions and picked essenti
important--"3", take it or leave it--"2", unimportant--"1", or unnecessary--"0" to the I

		PENTA Health %	PENTA Health I	SCARLET OAKS Health %	SCARLET OAKS Health I
Q. 6. Students spend about 4½ hours each day with the teacher in their program.	mean	100.00	4.00	100.00	3.38
	s.d.	00.00	0.00	00.00	0.52
Q. 7. Students' classwork is combined with activities that are similar to those of professionals in their field.	mean	81.25	3.63	100.00	3.88
	s.d.	17.68	0.52	00.00	0.35
Q. 8. Students are allowed to work at their own speed.	mean	75.00	3.00	65.63	3.57
	s.d.	26.73	0.76	29.69	0.53
Q. 9. Students visit places where people do the kinds of work the students are interested in.	mean	65.63	3.57	62.50	3.63
	s.d.	22.90	0.53	26.73	0.52
Q. 10. Students work on classwork and activities that meet their particular needs, interests, and career goals.	mean	87.50	3.75	96.88	3.88
	s.d.	13.36	0.46	8.84	0.35
Q. 11. Academic knowledge is applied to the student's career area.	mean	84.38	3.63	93.75	3.75
	s.d.	12.94	0.52	11.57	0.46

TABLE

iations of Responses on Instrument G to Questions Concerning
in Aspects of School Work and Importance (I) of These Aspects

, 50, 25 or 0 to percent questions and picked essential--"4",
-"2", unimportant--"1", or unnecessary--"0" to the Importance questions)

	PENTA Health %	 I	SCARLET OAKS Health %	 I	FIRESTONE Health %	 I
mean	100.00	4.00	100.00	3.38	13.24	2.50
s.d.	00.00	0.00	.00.00	0.52	29.47	1.22
mean	81.25	3.63	100.00	3.88	22.06	3.00
s.d.	17.68	0.52	00.00	0.35	15.01	1.00
mean	75.00	3.00	65.63	3.57	30.88	2.82
s.d.	26.73	0.76	29.69	0.53	25.81	0.73
mean	65.63	3.57	62.50	3.63	26.47	3.41
s.d.	22.90	0.53	26.73	0.52	22.48	0.62
mean	87.50	3.75	96.88	3.88	45.59	3.31
s.d.	13.36	0.46	8.84	0.35	25.36	0.60
mean	84.38	3.63	93.75	3.75	36.76	2.88
s.d.	12.94	0.52	11.57	0.46	35.49	1.05

RESULTS OF ANALYSES

Comparison with Control Group

At the October workshop it was suggested that control groups made up of students similar to the PPSP students be selected and given the same tests as the PPSP students. The results of administering an achievement test, the Educational Development Series of the Scholastic Testing Service (STS) and the Career Maturity Inventory (CMI) could then be examined to determine whether the PPSP students were doing as well academically as their counterparts in traditional programs.

Selection of the Control Groups

Students were chosen for the control groups who were similar to the PPSP students in the following ways: (1) year in school, (2) career interest, (3) location and type of high school, (4) past academic achievement. To find students in the Toledo, Cincinnati, and Akron areas who met these criteria Instrument N, the Vocational Interest Survey (see Appendix N) was administered to as many seniors as possible at high schools in each of the three geographic areas. Since PPSP students at Penta come from small rural/suburban schools in the Toledo area, the counselors at these schools were contacted. These counselors assisted the evaluation effort by distributing Instrument N to as many seniors as they could, returning the completed forms to the evaluation team. The same procedure was followed in Cincinnati and Akron except that the contacted schools were large suburban and large urban, respectively. Those students in Toledo and Cincinnati who indicated the appropriate career interest on Instrument N, and said they would be willing to take some tests in return for payment of ten dollars, were sent a letter asking permission to check their records for scores and grades (see Appendix N). The records of students in Akron were not checked, in keeping with the request of the Akron PPSP administrator. Akron control students were thus chosen on the basis of the first three criteria only. They were sent letters asking for their and their parents' permission to take the STS and the CMI.

The ten dollar payment was offered to all control students to, (a) increase the liklihood of gathering a large enough control group, (b) reimburse students for approximately five hours of testing on a Saturday, and (c) attempt to approximate the test performance motivation of the PPSP students. In retrospect it appears to have been a necessary incentive, given the high attrition rate in the process of selecting control students. For example, at one high school, almost 500 copies of Instrument N were distributed to seniors, of those completed (about 450), only

50 indicated both an interest in a health career and a willingness to take tests, of this 50 only 25 gave permission to examine their records, and of the 20 who were then asked to come to the test session 16 attended. Thus, because of attrition due to indifference, scheduling difficulties, or a desire to maintain the privacy of records, an initially large subject pool (500) was reduced to a very small number of controls (16).

Of course, the final control groups are not as similar to the PPSP students as would have been possible with unlimited access to school records. The students whose scores on the STS and CMI were used in the analyses described below, are roughly similar to the PPSP students from the same geographic area in age, career interest, type of school attended and academic achievement as can be seen in Table XII . The size of each of the control groups is the same as its respective PPSP group except in the case of Akron and Firestone where there are only half as many control students as PPSP students. This was due to a lack of interest on the part of Akron students contacted and unexpectedly small turn-out at the testing session.

TABLE XII

Means, Standard Deviations on the ACT and GPA (grade point average) of the Control Groups (for analysis of STS) and the PPSP Groups

	ACT Mean	ACT Standard Deviation	GPA Mean	GPA Standard Deviation
PENTA	75.00	13.99	$\bar{X} \geq 3.00$*	
TOLEDO CONTROL	71.10	26.79	3.68	.2476
SCARLET OAKS	50.88	19.21	2.86	.18
CINCINNATI CONTROL	49.50	22.27	2.37	.658

*A GPA of 3.00 or better was required to enter the Penta PPSP.

The STS and CMI were administered to the students in the three control groups on successive Saturdays in May, 1975 by a member of the evaluation team. The same tests were administered to the PPSP students by their teachers during the same time period. Instructions were given to the teachers so that the manner and timing of the test administration would be the same for the control students and the PPSP students. Firestone PPSP students and their control group did not receive the ability portions of the STS at the request of the PPSP administrator in Akron.

Results of Analyses

The analyses of both achievement and personality indices were designed to determine: (1) if differential performance between the PPSP and Control students existed, persumably as a result of the program, and (2) if the PPSP students grew in performance between last year and this year.

The Scholastic Testing Service's Educational Development Series (STS) included measures of interest in addition to measures of achievement. The Career Maturity Inventory measured components presumed to be related to choosing and holding a job.

Differential Achievement Between Experimental and Control Students

Two-way analyses of variance were performed to determine if there was significant differences in achievement between locations of the program (Cincinnati, Toledo, and Akron) and between the PPSP students and control students in those locations. These analyses showed that differences between locations and differences in achievement between the PPSP and control students existed. However, because ability differences between the PPSP and control were also found on the ability section of the STS for the two groups for which ability measures were able to be gathered (Toledo and Cincinnati), another statistical technique was used. Here differences in ability were removed statistically and then achievement was measured. This technique was an analysis of covariance.

The analysis of covariance results (see Tables XIII to XX) show that once difference in ability had been statistically removed, a significant difference between the PPSP and Control students was found on the USA subtest only. (see Table XVI). On the U.S.A. subtest the control students scored better than the PPSP students. The U.S.A. subtest contains material typically covered in high school United States' History classes. To the best of the evaluator's knowledge this History content was not covered in the Penta and Scarlet Oaks curriculum which concentrated more on the social science aspect of social studies. Consequently, it can be said that the PPSP students performed as well as the Control students on the majority of the achievement measures (Reading, English, Science, Math, and Solving Everyday Problems).

Student Growth In Achievement Between Last Year and This Year

Raw scores on each subtest of the achievement section of the STS were analyzed in two-way analyses of variance in order to study differences between last year and this year for each of the three locations. This analysis was thus limited to the students who were with both the program last year and this year.

Surprisingly, the results indicated that there had been no significant student growth on any of the achievement measures (see Appendix R). However, in looking at the percentiles for the students, it was apparent that for at least two of the three sites, students scored so well on the test in 1974 that there was little room for growth. For example, at Firestone the average percentile on the achievement measures last year was 96. In addition, the subtests of the achievement test are such that they test relatively general knowledge as opposed to specialized knowledge.

Consequently, it can be said that students at all three locations are performing well above average on the generalized test of knowledge; however, the non-significant growth between last year and this year is probably due to the fact that the test did not delve into the specialized knowledge that was taught this year.

It was found that there was significant growth in ability between last year and this year for the PPSP students. This was surprising; however, data from a study reported in the manual also indicates "unexpected" growth on retest; consequently, this change may be simply the result of familiarization with the test.

Differential Attitudes Between Experimental and Control Students (Appendix P)

Two-way analyses of variance were performed on the data from the interest sections of the STS and the scales of the Career Maturity Inventory. For each subscale PPSP students were compared with control students in each of the locations.

The only significant differences that were found, were between interest in Music and interest in English on the Interests portion of the STS; in both of these cases the control students expressed more interest in these two areas than the PPSP students. No significant differences were found between these two groups on the CMI.

Student Growth in Attitude Between Last Year and This Year

Raw scores on each of the subtests of the CMI were analyzed in two-way analyses of variance to determine differences between last year and this year for each of the three locations. These subtests measure students' abilities to know intermediate steps to reach a certain goal and whether students can accurately appriase the possibility of reaching certain goals. Significant growth was shown on two fo the subscales of the CMI: Knowing Yourself and Looking Ahead (see Appendix S).

Differences between Locations

Control students were selected from the three locations also represented by those students in the PPSP program to insure that representative comparison groups had been found. Consequently, even though differences were found between the sites of the program, these differences are not looked upon as important for the evaluation of the program. (see Appendices Q -S). It is highly probable that differential selection procedures on both the part of the program an the students who selected to go into these programs are the reasons for these differences.

Firestone

Since ability was not gathered for Firestone students, it is difficult to ascertain if a comparable control was selected. The achievement and attitude of the PPSP students at Firestone appeared comparable to that of the control (see Tables of means XXVIII and XXIX and analysis of variance tables in Appendix O).

Scarlet Oaks

The analysis of covariance (Tables XIII to XX) showed no significant difference between the PPSP students and the control students on the achievement measures except for the U.S.A. subtest on which the control scored higher than the PPSP students. Also, the Scarlet Oaks students grew more from last year to this year on the "Looking Ahead" subscale of the Career Maturity Inventory than the students at the other two locations (see Appendix S).

Penta

No significant difference on any of the achievement measures was found when PPSP students were compared to control students (see Tables XIII to XX). Except for the U.S.A. subtest on which the control scored higher than the PPSP students.

Live Oaks

During the first half of the 1974-1975 school year there were five students in the Live Oaks Social Science PPSP. At the beginning of 1975 one student entered college early. In the spring of 1975 another student, who had been doing poorly in the PPSP, returned to his home high school to complete enough credits for graduation. This left three students at test administration time in May. Of the three only one had taken the STS and CMI the previous year. Rather than risk revealing the identity of this student, the 1974 scores will not be reported. With only one set of scores, no statistical comparisons between 1974 and 1975 performances could be made.

Results of independent t tests between the Live Oaks PPSP students and control students are reported in Table XXI. Although there are differences between the means these are not significant, that is, they could have occurred by chance. Consequently it can be said that the Live Oaks PPSP students are performing as well as similar students from a traditional high school program, on tests of academic interests, academic achievement, verbal and non-verbal ability, career attitudes, and career information.

TABLE XIII

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Basic Skills Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	4705.163	1/35	22.265**
Between PPSP and Control	198.258	1/35	0.938
Interaction (Sites x Conditions)	338.459	1/35	1.602
Within Groups	211.323	35	

**p .01

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	146.90	118.10	142.00	105.10
Ns	10	10	10	10
Adjusted Means	140.143	110.923	138.924	122.110
Ns	10	10	10	10

TABLE XIV

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Battery Composite Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	27481.295	1/35	7.829 **
Between PPSP and Control	2907.601	1/35	0.828
Interaction (Sites x Conditions)	4592.529	1/35	1.308
Within Groups	3510.121	35	

**p .01

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	381.90	350.00	378.00	257.70
Ns	10	10	10	10
Adjusted Means	367.832	335.056	371.595	293.117
Ns	10	10	10	10

TABLE XV

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Solving Problems Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	418.745	1/35	6.678*
Between PPSP and Control	96.261	1/35	1.535
Interaction (Sites x Conditions)	179.367	1/35	2.860
Within Groups	62.707	35	

*p .05

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	45.30	43.00	45.90	32.10
Ns	10	10	10	10
Adjusted Means	44.487	42.136	45.530	34.147
Ns	10	10	10	10

TABLE XVI

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the
U. S. A.
Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	2.250	1/35	0.055
Between PPSP and Control	473.484	1/35	10.304**
Interaction (Sites x Conditions)	20.439	1/35	0.445
Within Groups	45.951	35	

**p .01

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	45.80	45.00	50.30	43.20
Ns	10	10	10	10
Adjusted Means	42.720	41.728	48.898	50.955
Ns	10	10	10	10

TABLE XVII

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Science Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	39.690	1/35	1.946
Between PPSP and Control	2.967	1/35	0.145
Interaction (Sites x Conditions)	20.837	1/35	1.021
Within Groups	20.400	35	

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	50.30	49.90	49.70	37.70
Ns	10	10	10	10
Adjusted Means	47.492	46.917	48.422	44.769
Ns	10	10	10	10

TABLE XVII

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the
Math
Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	526.132	1/35	8.900**
Between PPSP and Control	6.193	1/35	0.105
Interaction (Sites x Conditions)	280.212	1/35	4.740* +
Within Groups	59.118	35	

*$p < .05$

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	45.50	32.30	39.50	30.70
Ns	10	10	10	10
Adjusted Means	43.230	29.889	38.467	36.414
Ns	10	10	10	10

+Scheffe tests between PPSP and Controls within sites showed no significant differences

TABLE XIX

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the English Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	453.192	1/35	8.607**
Between PPSP and Control	66.278	1/35	1.259
Interaction (Sites x Conditions)	0.112	1/35	0.002
Within Groups	52.654	35	

**p .01

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	51.40	44.30	52.80	38.30
Ns	10	10	10	10
Adjusted Means	48.887	41.631	51.656	44.626
Ns	10	10	10	10

TABLE XX

Analysis of Covariance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Reading Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	593.814	1/35	11.281**
Between PPSP and Control	11.907	1/35	0.226
Interaction (Sites x Conditions)	1.749	1/35	0.033
Within Groups	52.637	35	

**p .01

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Unadjusted Means	50.00	41.50	49.70	36.10
Ns	10	10	10	10
Adjusted Means	48.026	39.403	48.801	41.070
Ns	10	10	10	10

TABLE XXI

Independent *t* Tests, between Live Oaks PPSP and Social Science Control Group

STS	PPSP n	PPSP mean	PPSP s.d.	Control n	Control mean	Contro s.d.
Interest in music	3	6.67	.58	3	8.00	1.00
Interest in art	3	6.67	.58	3	6.33	1.16
Interest in Mathematics	3	3.68	3.06	3	4.68	1.53
Interest in science	3	4.00	1.73	3	4.00	3.00
Interest in social science	3	5.00	3.46	3	7.67	1.16
Interest in English	3	5.67	2.52	3	5.67	1.53
Interest in foreign language	3	4.67	3.22	3	3.22	7.00
Interest in vocational	3	4.00	2.00	3	4.33	4.04
Non-Verbal ability	3	45.00	10.00	3	30.33	6.66
Reading ability	3	48.00	8.88	3	35.67	3.06
English ability	3	53.67	7.57	3	39.00	11.16
Math ability	3	31.67	10.50	3	34.33	6.66
Science ability	3	40.33	14.98	4	39.67	13.05
The U.S.A.	3	44.00	13.08	3	44.33	13.43
Solving everyday problems	3	39.00	7.00	3	35.33	4.04
Battery Composite	3	340.67	84.18	3	298.67	57.27
Total Ability	3	84.00	29.14	3	70.33	18.56
Basic Skills	3	133.33	25.72	3	109.00	17.58
Verbal Ability	3	39.00	19.47	3	40.00	13.23
CMI						
Attitude Scale	3	39.33	8.02	3	36.33	1.53
Knowing Yourself	3	14.67	1.16	3	13.33	2.08
Knowing about jobs	3	17.33	2.52	3	12.33	5.36
Choosing a job	3	14.00	3.46	3	11.67	3.05
Looking ahead	3	16.67	1.53	3	9.67	6.11
What should they do	3	11.00	2.00	3	6.33	1.16

TABLE XXI

Independent t Tests, between Live Oaks PPSP and Social Science Control Group

PPSP n	PPSP mean	PPSP s.d.	Control n	Control mean	Control s.d.	d.f.	t value
3	6.67	.58	3	8.00	1.00	4	-2.00
3	6.67	.58	3	6.33	1.16	4	.48
3	3.68	3.06	3	4.68	1.53	4	- .51
3	4.00	1.73	3	4.00	3.00	4	0.00
3	5.00	3.46	3	7.67	1.16	4	-1.26
3	5.67	2.52	3	5.67	1.53	4	-0.00
3	4.67	3.22	3	3.22	7.00	4	-1.20
3	4.00	2.00	3	4.33	4.04	4	- .13
3	45.00	10.00	3	30.33	6.66	4	2.12
3	48.00	8.88	3	35.67	3.06	4	2.27
3	53.67	7.57	3	39.00	11.16	4	1.88
3	31.67	10.50	3	34.33	6.66	4	- .37
3	40.33	14.98	4	39.67	13.05	4	.06
3	44.00	13.08	3	44.33	13.43	4	- .03
3	39.00	7.00	3	35.33	4.04	4	.79
3	340.67	84.18	3	298.67	57.27	4	.71
3	84.00	29.14	3	70.33	18.56	4	.69
3	133.33	25.72	3	109.00	17.58	4	1.35
3	39.00	19.47	3	40.00	13.23	4	-0.07
3	39.33	8.02	3	36.33	1.53	4	.64
3	14.67	1.16	3	13.33	2.08	4	.97
3	17.33	2.52	3	12.33	5.36	4	.90
3	14.00	3.46	3	11.67	3.05	4	.88
3	16.67	1.53	3	9.67	6.11	4	1.93
3	11.00	2.00	3	6.33	1.16	4	3.50

CRITERION REFERENCED TESTS

As a result of suggestions and discussion at the October workshop criterion-referenced tests were included in the evaluation in an attempt to measure the achievement of special program objectives.

Construction of Criterion-Referenced Tests

Persons with knowledge of the two curricular areas, health and social science, and with experience in test construction were employed to develop most of the tests which would measure the achievement of eacg program's objectives. Test construction began with a letter to PPSP teachers (Appendix) asking them to prepare a list of their own objectives for the PPSP at their school. Test constructors then met with each teacher to discuss objectives. To construct a criterion-referenced test it is important to formulate objectives in specific (behavioral) terms and to have a thorough knowledge of student experiences, including classwork, fieldwork, instructional materials and examinations. During the on-site visits and in subsequent communication via mail and telephone the test developers attempted to gather the necessary information about teachers' objectives and students' experiences. Because of the time and distance constraints imposed by the nature of the program, the information gathered was not as complete as was desired. Since the tests are based on this incomplete data, judgments about student performance on these tests must be qualified by the realization that the tests are not completely matched with the students' experiences.

Results

As the criterion-referenced tests were designed to measure the achievement of objectives specific to each of the different PPSP locations, different tests were constructed for each location. The tests, in the form in which they were administered, are in Appendices U through Y . The results of the tests are reported, by school, in Section II.

SECTION II

SCARLET OAKS--HEALTH

This section includes data on standardized achievement and interest measures for Scarlet Oaks students, results of criterion referenced tests, and student plans and reports of their program.

Scarlet Oaks students were moderately high achievers. A comparison of Scarlet Oaks PPSP students with the control group (students chosen because of comparable past achievement and apparent vocational interest) seems to show that Scarlet Oaks students performed as well as the control group on interest measures, and a bit higher on achievement measures. Although the PPSP program altered the standard curriculum, the PPSP students performed as well as the control group on the various indices of achievement. The criterion-referenced tests seemed to show that students knew how to plan toward their career goals.

Students viewed opportunities for field experiences and the use of intrinsically motivating materials as attractive features of the program. Generally, students felt they had learned more in the PPSP program than if they had remained in a traditional program.

TABLE XXII

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Scarlet Oaks PPSP Program

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standard Dev 1974
STS (n = 10)					
Abilities					
Non-verbal	40.30	75.8	52.40	97.7	4.75
Verbal	36.30	72.6	41.60	84.1	7.93
Achievement					
Reading	40.40	65.5	41.50	69.2	8.72
English	39.90	69.2	44.30	75.8	9.21
Math	32.10	72.6	32.30	69.2	5.54
Science	44.00	88.5	49.90	94.5	5.16
The U. S. A.	44.10	86.4	45.00	84.1	9.62
Solving Everyday Problems	41.40	84.1	43.00	86.4	6.92
Composite Scores					
Battery Comp.	318.50	81.6	350.00	86.4	41.17
Total Ability	76.60	75.8	94.00	94.5	6.64
Basic Skills	112.40	69.2	118.10	75.8	18.05
Interests					
Music	4.20		5.60		3.16
Art	6.40		6.90		1.69
Mathematics	4.40		4.50		2.87
Science	6.70		7.20		1.85
Social Science	6.20		6.30		1.94
English	5.50		6.00		2.33
Foreign Language	5.70		5.10		2.61
Vocational	6.00		5.33		2.83

TABLE XXII

andard Deviations of Achievement, Ability,
Scores in the Scarlet Oaks PPSP Program

Means					
1974		1975			
Raw Score	% ile	Raw Score	% ile	Standard Deviation 1974	1975
40.30	75.8	52.40	97.7	4.75	4.22
36.30	72.6	41.60	84.1	7.93	6.81
40.40	65.5	41.50	69.2	8.72	7.34
39.90	69.2	44.30	75.8	9.21	6.33
32.10	72.6	32.30	69.2	5.54	7.63
44.00	88.5	49.90	94.5	5.16	5.66
44.10	86.4	45.00	84.1	9.62	6.60
41.40	84.1	43.00	86.4	6.92	6.16
18.50	81.6	350.00	86.4	41.17	31.81
76.60	75.8	94.00	94.5	6.64	7.01
12.40	69.2	118.10	75.8	18.05	15.60
4.20		5.60		3.16	2.62
6.40		6.90		1.69	1.30
4.40		4.50		2.87	2.42
6.70		7.20		1.85	1.89
6.20		6.30		1.94	1.95
5.50		6.00		2.33	1.84
5.70		5.10		2.61	2.59
6.00		5.33		2.83	2.11

TABLE XXIII

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Scarlet Oaks PPSP Program

	Means				Standard Dev
	1974		1975		1974
	Raw Score	% ile	Raw Score	% ile	
CMI					
Attitude	40.00	81.0	42.10	87.0	5.53
Knowing Yourself	13.80	45.0	15.90	66.0	3.25
Knowing About Jobs	17.90	84.0	18.20	78.0	1.22
Choosing a Job	12.70	41.0	15.20	51.0	3.77
Looking Ahead	14.20	58.0	17.10	80.0	2.64
What Should They Do	11.50	70.0	11.40	56.0	2.69

TABLE XXIII

dard Deviations of Achievement, Ability,
Scores in the Scarlet Oaks PPSP Program

Means					
1974		1975			
Raw core	% ile	Raw Score	% ile	Standard Deviation 1974	1975
.00	81.0	42.10	87.0	5.53	3.24
.80	45.0	15.90	66.0	3.25	2.07
.90	84.0	18.20	78.0	1.22	1.40
.70	41.0	15.20	51.0	3.77	3.74
.20	58.0	17.10	80.0	2.64	1.45
.50	70.0	11.40	56.0	2.69	1.69

TABLE XXIV

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Cincinnati Control Group

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standard De 1974
STS (n = 10)					
Abilities					
Non-verbal			33.90	46.0	
Verbal			37.10	69.2	
Achievement					
Reading			36.10	50.0	
English			38.30	61.8	
Math			30.70	65.5	
Science			37.70	69.2	
The U. S. A.			43.20	78.8	
Solving Everyday Problems			35.67	57.9	
Composite Scores					
Battery Comp.			286.33	61.8	
Total Ability			71.00	61.8	
Basic Skills			105.10	57.9	
Interests					
Music			7.44		
Art			7.00		
Mathematics			4.50		
Science			6.33		
Social Science			8.13		
English			7.00		
Foreign Language			5.25		
Vocational			6.00		

TABLE XXIV

dard Deviations of Achievement, Ability,
Scores in the Cincinnati Control Group

Means					
1974		1975		Standard Deviation	
Raw Score	% ile	Raw Score	% ile	1974	1975
		33.90	46.0		11.49
		37.10	69.2		
		36.10	50.0		5.34
		38.30	61.8		9.50
		30.70	65.5		8.12
		37.70	69.2		9.64
		43.20	78.8		9.68
		35.67	57.9		7.63
		286.33	61.8		58.98
		71.00	61.8		18.22
		105.10	57.9		21.41
		7.44			1.89
		7.00			1.15
		4.50			2.45
		6.33			2.40
		8.13			0.78
		7.00			0.71
		5.25			2.11
		6.00			1.31

TABLE XXIV

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Cincinnati Control Group

	Means				
	1974		1975		Standard Dev
	Raw Score	% ile	Raw Score	% ile	1974
CMI (n = 10)					
Attitude			40.00	71.0	
Knowing Yourself			14.40	41.0	
Knowing About Jobs			18.40	78.0	
Choosing a Job			15.80	64.0	
Looking Ahead			15.00	59.0	
What Should They Do			11.90	66.0	

TABLE XXIV

d Deviations of Achievement, Ability,
res in the Cincinnati Control Group

Means				Standard Deviation	
974		1975			
e	% ile	Raw Score	% ile	1974	1975
		40.00	71.0		8.24
		14.40	41.0		2.73
		18.40	78.0		1.43
		15.80	64.0		2.68
		15.00	59.0		2.72
		11.90	66.0		3.11

PPSP students from the Cincinnati area were given an opportunity to express their opinions about several specific aspects of the PPSP program. A questionnaire (see Appendix K) was designed so that free responses could be made to open-ended questions. Written and verbal instructions specifically request information which could benefit future programs similar to PPSP. A second instrument (Instrument G) was designed to elicit more general comments about the program (see Appendix L). To help students organize their opinions, a role-playing device was used in a discussion following the completion of Instrument G. The evaluator administering this questionnaire asked students to imagine they were educational planners in charge of planning a future PPSP program. The sections below are summaries of responses from the two questionnaires. Each section corresponds to a separate item from the instrument and includes verbal feedback. Verbatim questionnaire responses appear in Appendix K for the Student Questionnaire, and in Appendix L for Instrument G.

Summary of Student Questionnaire

Selection of students: academic ability

Opinion seems to be highly varied on the importance of academic ability. In general, average, or above average ability was recommended. Even though academic ability may not be viewed as the most important criterion, some students felt strong academic ability is important in that it is indicative of necessary intrinsic motivation.

Selection of students: vocational interests

Responses were typically written in terms of the general health area. However, a great deal of variability in the specificity of vocational interests were expressed.

What was right or wrong with your PPSP's method of selection?

Some students were unaware of how they were selected, but most felt that there was little competition for getting into the program. The vagueness of responses suggest that home schools may have been apathetic toward PPSP, and in one case, outright disapproval by the home school was expressed.

How would you locate and inform potential students?

Recommendations for finding new students include a wide variety of suggestions. Suggestions include: (1) use of counselors; (2) use of vocational interest tests; (3) development of a special test. The most common suggestion was to provide a program, such as a special school assembly for ninth and tenth graders so that the general nature of the PPSP program may be presented.

Selection of teachers: academic background

In general, students felt that the PPSP program requires little more of teachers' backgrounds than the requirements of any secondary teacher. Some emphasis was placed on the need for PPSP teachers to have training in counseling skills to a greater extent than a traditional classroom teacher.

Selection of teachers: vocational background

Emphasis was placed on breadth of vocational experience. Only one respondent suggested a need for specific skills in the vocational background.

What was right or wrong with your PPSP's method of teacher selection?

Students were unable to address themselves to the question of teacher selection. All but one of the responses expressed deep admiration and praise for the particular teacher selected for their class. One dissenting student felt that their teacher did not provide sufficient structure for the classroom.

Selection of materials and texts

Materials selected for use were the same as those used in college preparatory courses. The responses expressed general approval of these materials. Specific criticisms were that more laboratory material should have been provided. Also criticized was the general nature of the material. The latter response indicated a need for more specific career-related material.

What was right or wrong with your PPSP's selection?

Though praise was generally present, there was a general call for more materials. Materials which allow for individualized use were praised.

Organization of PPSP: transportation

Almost universally, students reported they spent an uncomfortably long time on buses. Though the mood was generally tolerant of transportation problems, some more severe complaints were given.

Organization of PPSP: class scheduling

All students felt satisfied with class scheduling. This did not seem to be an important issue.

Organization of PPSP: choice of field experiences

Field experiences were assigned as a result of personal counseling of the teacher. Special career interests were primarily considered in the given assignment, and flexibility was permitted. Students felt the field experience was an important part of PPSP.

What was right or wrong with your PPSP's organization?

Some students felt that flexibility was the strong part of the organization of PPSP. Even though some problems were experienced early in the program, most students felt the organization was good.

Coordination between PPSP and the home school

This issue must be recognized as a general problem for this group. In two cases, coordination was a serious source of conflict.

Extracurricular activities

Two of the students showed frustration with problems related to extracurricular activities held after school at their home school. Some respondents were not interested in extracurricular activities and thus felt no problem.

Guidance and information

Responses to this item were not strongly worded. From this observation, it is judged that counseling was not an issue of great importance to students in this group. Approximately one-half of the students indicated counseling services were adequate and one-half considered services inadequate.

What was right or wrong with the coordination between your PPSP and your home school?

Communication between home school and PPSP program students must be categorized as inadequate. Apparently little prior structure for communication was provided, since students were unable to pinpoint the source of the problem.

Academic Program: Integration with field experience

This was viewed as an important aspect of the PPSP program. Most students felt that some integration was present, but withheld strong criticism because they felt integration is difficult to manage.

Integration of academic subjects (i.e., math with science) toward occupational choice.

Responses were vague and indecisive. Academic integration may not have been seen as critical. The students were aware that integration is part of the PPSP program, but were uncertain as to how this should be accomplished.

How does the amount and level of learning you derived from the PPSP compare with what you anticipated?

In general, students felt they had learned more in the PPSP program than if they had remained in a traditional program. Comparison was not always easy since the participants felt they learned qualitatively different things. Improved learning was generally attributed to greater personal interest in the subject matter.

With what you would have expected at your home school?

This question revealed in a straightforward fashion the latent resentment toward traditional schooling. Students found the routines of traditional school stiffling. However, there was some reservation about the actual amount of academic learning in the PPSP program.

Concept of PPSP: separation of PPSP according to occupational interests.

There was general agreement that separation by occupational interest was a good ideal. At least one of the students from the Cincinnati area may have been misplaced in the PPSP program. The response, "bad idea" indicated disagreement with the general idea of PPSP.

Field experiences Field experiences were considered valuable.

Integration of academic and vocational information and skills

There was unanimous agreement that the integration of academic and vocation was a good idea. No comments proved helpful toward defining how the integration should take place.

Best location or type of school for PPSP:

The consensus was that the open concept was important for the operation of the program. There was division about whether the program should be conducted at the home school, or at a separate vocational school. Generally, the feeling was that a vocational school located centrally, and near several other schools is ideal.

Which of the above was responsible for your decision to be in PPSP?

A variety of reasons were cited. Primarily getting some non-threatening first-hand experience at a particular field of occupational interest was listed as important. Also important was studying intrinsically motivating material.

For what other reasons did you choose PPSP?

Negative reasons were most given--the desire to get away from traditional school atmosphere. Another reason is summarized by one student as "a chance to get a jump on doing."

Summary of Instrument G

I. What do you consider to be the most positive features of the program?

The teacher was considered the most positive portion of the program. Most comments about the teaching style commended the open, trusting, individualized environment. Comment was also made about the value of the field experience.

II. What do you consider to be the weakest features of the program?

The transportation problem of spending too much time on buses was considered the most undesirable feature. Non-specific criticism was made about the curriculum. Also, criticism was made about the rigor of the load in the program.

III. Do you have any changes you would like to see made in the program?

It is suggested that the PPSP program be implemented in each home school to avoid transportation problems and extracurricular problems.

IV. Give any other comments, suggestions, criticisms you might have.

There was general agreement that PPSP should be implemented in other schools in the future.

SCARLET OAKS CAREER TEST

The Career Test was devised to measure achievement of the following objectives: (a) Students would have chosen a career field of interest to them, (b) Students would know the type and length of training their career required, (c) Students would know where this training could be obtained, and (d) Students would have greater self-awareness in relation to career selection. A copy of the Scarlet Oaks Career Test and of students' verbatim responses is in Appendix U . Because of the variety of student interests and field experiences, the test is composed of open-ended questions.

To achieve the career-related goals, Scarlet Oaks PPSP students went on a number of group or individual field trips and spent time working in hospitals, clinics, and centers. On the test, students showed that they had met with a great many health professionals at a number of different sites. The number of sites or professionals listed ranged from five to twenty with an average of fourteen. The students had spent some time with a variety of health professionals and a great deal of time (e.g., fifty hours) with one or two for whom they did field work. The field work experiences seem to have been tailored to the individual student's interest.

Eight of the ten students taking the Career Test indicated that they had chosen a particular health occupation as a fairly definite goal when they entered the program. The other two only knew they were more or less interested in the health field. At the time of testing, eight of the students had maintained their original position as to choice or interest. Of the other two, one had decided against the health field completely, and the other had moved from being interested to making a fairly definite career choice. Five of the students indicated that their interest in the health field had increased, two felt their interest was the same and two felt their interest had decreased.

All of the students were able to say what kind of training their chosen occupation required and to name at least three institutions offering the necessary training. The students performed very well on this section of the test.

Without exception, the Scarlet Oaks students felt that their field experiences had an important impact on the self-awareness with which they made career choices. The statements of the students in this regard demonstrate an amazing self-understanding and ability for rational decision-making on the part of high school students--or any young person.

The students seemed to feel that classroom experiences were important as an adjunct to field work. Although the students indicated they learned important things in the classroom, these were not as influential in career selection as the field work.

In the opinion of the examiner, the results of the Career Test show that the Scarlet Oaks PPSP has done an excellent job of meeting its career related objectives.

LIFE SCIENCE--SCARLET OAKS

Topics to be covered by the life science test were identified by the teacher and the examiner during a meeting at Scarlet Oaks and through correspondence. Because the course was largely independent of textbook material, contained a large amount of individual project work, and included value clarification exercises, objectives were difficult for the teacher to explain or specify. The test focused upon those topics and areas for which objectives were most clear.

The topics covered by the test were:

1. Cell Physiology and Life Processes
2. Human Anatomy and Physiology
3. Nutrition
4. Microbiology and Immunization
5. Monitoring Body Functions
6. First Aid
7. Experimental Design
8. Locating Information

The greatest emphasis in testing was given to human anatomy and physiology. Items in this category constituted nearly half (26/60) of the objective portion of the test.

Items written by the examiner were reviewed and edited by the teacher. The teacher also gave specific suggestions for items in the area of first aid and monitoring body functions.

Results

Test Totals:	
Number of Questions Analyzed	60
Mean	47.30
Median	46.50
Mean Item Easiness (proportion of items answered correctly)	.788
Percentage of students answering:	
80-100% of items correctly	40
60-79% of items correctly	60
50-59% of items correctly	--
40-49% of items correctly	--

Section Results:

Cell Physiology and Life Processes (Items 1-6, 15, 28)	
Number of Questions	8
Mean Item Easiness	.625
Nutrition (Items 29-34)	
Number of Questions	6
Mean Item Easiness	.883
Microbiology and Immunization (Items 35-37, 39)	
Number of Questions	4
Mean Item Easiness	.825
Monitoring Body Functions (Items 43-52)	
Number of Questions	10
Mean Item Easiness	.890
First Aid (Items 55-57)	
Number of Questions	3
Mean Item Easiness	.967
Experimental Design (Items 58-60)	
Number of Questions	3
Mean Item Easiness	.567

Open-Ended Items

Item 61--Locating Career Information

Student Suggestions	Frequency
Ask a veterinarian	9
Ask a school counselor	8
Contact a college or college personnel involved in training veterinarians	
Visit a library, get books on the subject	3
Look in encyclopedia	1

Each student made at least one suggestion. The maximum number of suggestions made by one student was four. The average number of suggestions per student was three. No student gave specific suggestions regarding the location of printed references. No journals, abstracts, indexes or books were mentioned by name as library sources.

Item 62--Locating information about a particular Health-related topic

Student Suggestions	Frequency
Request information from the American Cancer Society	7
Find books on cancer or smoking	4
Ask a doctor	3
Go to a medical library	3
Use an encyclopedia	2
Go to a local library	1
Use magazines	1
Use a medical journal	1
Obtain hospital medical records	1
Contact Cincinnati Heart Association	1

Each student made at least one suggestion. The maximum number of suggestions made by an individual student was four. The average number of suggestions was two. No student explained how he would proceed to use the facilities of a local or medical library or what could be done with hospital medical records. No mention was made of particular indexes, abstracts, books, magazines, or journals that might aid in the search for information.

Discussion of Results

The life science test for Scarlet Oaks consisted of 60 multiple choice items and two open-ended items. Because of the difficulty in identifying the higher level cognitive objectives of the course, the majority of the multiple choice items dealt with knowledge of specific facts or terminology. The open-ended items were designed to evaluate the information--locating skills developed by the students in the course of preparing their individual projects and reports.

As expected, the students were very successful in answering the objective test items. The only section for which less than 60% of the items were correctly answered was the one dealing with experimental design. This section was the most difficult because none of the items could be directly answered by recall of specific information and because experimental design was not treated as a separate topic during the course, although it was discussed many times. It should be pointed out that even for this section the mean item easiness was a respectable 0.567.

Responses for both of the open-ended items show that the students prefer to obtain information through direct contact with individuals or agencies, rather than through use of reference materials located in a library. In the situations described by the test items the direct approach is very practical. Talking with counselors, veterinarians and contacting college personnel certainly makes sense when a youngster wishes to know more about training programs for veterinarians. Indeed, students should be encouraged to seek firsthand information whenever it can be obtained without inconvenience to the professional involved.

The time element is a factor worth considering however. Students may find that writing for information or obtaining several interviews with cooperative medical or veterinary personnel is more time consuming than spending an afternoon in the library. In addition, information presented in a thoughtful article may be more clearly presented and carefully documented than that obtained through a personal interview. For these reasons, students should developskill in locating materials in the library.

Several students suggested going to the library or finding books or magazines that would provide information on the topics being researched. However, no student mentioned how he would proceed to locate appropriate material once in the library. Since the items specifically requested students to name the references and describe the procedures they would follow, the responses suggest that students are not well acquainted with tools such as guides, indices, abstracts and the card catalog. If the program goal of developing students' abilities to independently locate needed information is thought to be an important one, more attention should be devoted to promoting the necessary skills. These skills will become more and more important to students as their education progresses, since the topics studied will become more complex and it will become increasingly difficult to find and interview a local expert.

CHEMISTRY--SCARLET OAKS

Items for the Scarlet Oaks chemistry test were based upon correspondence with the course instructor, the class text, and samples of tests which had been given by the instructor. The following topics were included on the multiple choice portion of the test.

1. General Skills (significant figures, metric conversions)
2. Formulas
3. Kinetic Energy (temperature, molecular motion)
4. Periodic Table (atomic structure, electronegativity, bonding)
5. Principles of Chemical Reactions
6. Percentage Composition
7. Phase Changes
8. Acid Base Phenomena
9. Gas Laws

Because the PPSP students in Cincinnati did not study chemistry for a full year, emphasis was placed upon the basics of formula and equation writing and use of the periodic table. The multiple choice items on these topics were supplemented by items requiring students to write formulas and complete and balance equations.

Items written by the examiner were reviewed and edited by the teacher.

Results

Test Totals:

Number of Questions Analyzed	35
Mean	16.60
Median	14.50
Mean Item Easiness (proportion of items answered correctly)	.474
Percentage of students answering:	
80-100% of items correctly	0
60-79% of items correctly	20
50-59% of items correctly	20
40-49% of items correctly	50
30-39% of items correctly	10

Section Totals:

General Skills (Items 1, 2, 5)	
Number of Questions	40
Mean Item Easiness	.5
Formulas (Items 4, 11, 41-55)	
Number of Questions	17
Mean Item Easiness	.57
Kinetic Energy (Items 3, 19, 28, 34, 39)	
Number of Questions	5
Mean Item Easiness	.68
Periodic Table (Items 6, 7, 8, 10, 12, 14-16, 24, 38)	
Number of Questions	10
Mean Item Easiness	.55
Principles of Chemical Reactions (Items 13, 17, 18, 20, 29)	
Number of Questions	5
Mean Item Easiness	.66
Percentage Composition (Items 25-27)	
Number of Questions	3
Mean Item Easiness	.13
Phase Changes (Items 33, 35, 37)	
Number of Questions	3
Mean Item Easiness	.40
Acid/Base Phenomena (Items 30, 31)	
Number of Questions	2
Mean Item Easiness	.25
Gas Laws (Items 36, 40)	
Number of Questions	2
Mean Item Easiness	0.00

Results for items 9, 21-23, and 32 were not reported. Omission of a crucial diagram made it impossible for students to answer items 21-23. The course instructor requested that items 9 and 32 be eliminated.

The students' ability to complete and balance chemical equations was tested by items 56-60. Item 56 was dropped by the examiner for purposes of reporting results because a typographical error in the item was thought to have confused students.

Balancing a Complete Equation (Item 57)

Percentage of students correctly balancing	100%

Completing and Balancing Equations (Items 58-60)

Characteristics of Student Answer	Percentage of Students
Item 58	
Both products correct, equation balanced	20
Both products correct, equation not balanced	10
One product correct	50
No answer	20
Item 59	
Both products correct, equation balanced	30
Both products correct, equation not balanced	0
One product correct	20
Rewrote formulas for reactants	30
No answer	20
Item 60	
Both products correct, equation balanced	0
Both products correct, equation not balanced	0
One product correct	30
Attempted an answer, no correct products	50
No answer	20

Discussion

The majority of items required students to operate above the knowledge level. To answer questions they were required to apply what they had learned to the situation presented by the test items. When examining the test results, it should be kept in mind that these students had studied chemistry for only a short time before taking the examination. Because the teacher wished to introduce his pupils to a variety of chemical topics, it was impossible to devote much time to any one topic. As a result, student mastery was not anticipated. Students who correctly answered 50% or more of the items should be considered to have done well in achieving the course objectives.

The test results show that four of the ten students answered 50% or more of the items correctly. Nine of the ten students answered better than 40% of the items correctly. The examiner feels that these overall results indicate that the Scarlet Oaks PPSP students have satisfactorily achieved the objectives of their brief chemistry program. However, their knowledge of basic chemistry is not as great as that of students in full year chemistry programs.

When the test results are inspected section by section, it is obvious that the students were much more successful in some sections than in others. This is believed to be a reflection of the relative amounts of time the class devoted to the topics tested. The students found the kinetic energy and reaction principles to be the easiest sections. Considerable difficulty was experienced with the gas laws and percentage composition sections. It should be noted that the items in the latter section are interrelated. Most students answered the first of these items incorrectly. As a result, they were not able to answer subsequent items.

LIVE OAKS--SOCIAL SCIENCE

The following section includes reports of results from standardized achievement, interest and attitude tests, and criterion-referenced tests. These measures were taken on only three students because no more remained in the program in April when the tests were administered. The section does not include summaries of students' comments on Instrument K and G, as do the sections on the other PPSP locations. All the Live Oaks PPSP students took summer jobs and were released from school before these forms were administered.

The results of the achievement and ability tests indicate that the Live Oaks students are high achievers in some areas, such as English and Reading and do moderately well in the other skills measured by the STS (see Table XXV).

Comparisons between the Live Oaks students and students from a traditional high school program indicate that Live Oaks students perform as well on all subtests of the STS.

It was not possible to compare the Live Oaks students 1975 performance with their 1974 performance because two of the students did not take the test last year, and reporting one student's scores might violate that student's right to anonymity.

The results of comparing Live Oaks students' CMI scores with those of control students indicate that the Live Oaks students did no better on this measure of mature attitudes toward, and information about, career selection and development. Although the differences between Live Oaks student's performance and control students performance were not significant, the Live Oaks students did score better than the controls on all subtests of the CMI. This might be seen as a sign that the PPSP did increase students' ability to make realistic career decisions.

Data from the criterion-referenced tests indicate that, in general, the Live Oaks students have mastered the material presented in their courses in a more than satisfactory manner. However, the students responses to the Career Test do not show as thorough an understanding of the social science careers, and the career selection and implementation process as was expected.

TABLE XXV

Independent t Tests, between Live Oaks PPSP and Social Science Control Group

(n = 3)

STS	PPSP %	PPSP mean	PPSP s.d.	Control %	Control mean
Interest in music		6.67	.58		8.00
Interest in art		6.67	.58		6.33
Interest in Mathematics		3.68	3.06		4.68
Interest in science		4.00	1.73		4.00
Interest in social science		5.00	3.46		7.67
Interest in English		5.67	2.52		5.67
Interest in foreign language		4.67	3.22		3.22
Interest in vocational		4.00	2.00		4.33
Non-Verbal ability	90.3	45.00	10.00	38.2	30.33
Reading ability	84.1	48.00	8.88	46.0	35.67
English ability	93.3	53.67	7.57	61.8	39.00
Math ability	69.2	31.67	10.50	75.8	34.33
Science ability	75.8	40.33	14.98	72.6	39.67
The U.S.A.	81.6	44.00	13.08	81.6	44.33
Solving everyday problems	72.6	39.00	7.00	54.0	35.33
Battery Composite	84.1	340.67	84.18	65.5	298.67
Total Ability	86.4	84.00	29.14	57.9	70.33
Basic Skills	88.5	133.33	25.72	65.5	109.00
Verbal Ability	75.8	39.00	19.47	72.6	40.00
CMI					
Attitude Scale	63.0	39.33	8.02	40.0	36.33
Knowing Yourself	52.0	14.67	1.16	33.0	13.33
Knowing about jobs	65.0	17.33	2.52	21.0	12.33
Choosing a job	42.0	14.00	3.46	27.0	11.67
Looking ahead	80.0	16.67	1.53	34.0	9.67
What should they do	56.0	11.00	2.00	25.0	6.33

TABLE XXV

ndependent t Tests, between Live Oaks PPSP
and Social Science Control Group
(n = 3)

PPSP %	PPSP mean	PPSP s.d.	Control %	Control mean	Control s.d.	d.f.	t value
	6.67	.58		8.00	1.00	4	-2.00
	6.67	.58		6.33	1.16	4	.48
	3.68	3.06		4.68	1.53	4	- .51
	4.00	1.73		4.00	3.00	4	0.00
	5.00	3.46		7.67	1.16	4	-1.26
	5.67	2.52		5.67	1.53	4	-0.00
	4.67	3.22		3.22	7.00	4	-1.20
	4.00	2.00		4.33	4.04	4	- .13
0.3	45.00	10.00	38.2	30.33	6.66	4	2.12
4.1	48.00	8.88	46.0	35.67	3.06	4	2.27
93.3	53.67	7.57	61.8	39.00	11.16	4	1.88
9.2	31.67	10.50	75.8	34.33	6.66	4	- .37
5.8	40.33	14.98	72.6	39.67	13.05	4	.06
1.6	44.00	13.08	81.6	44.33	13.43	4	- .03
2.6	39.00	7.00	54.0	35.33	4.04	4	.79
4.1	340.67	84.18	65.5	298.67	57.27	4	.71
6.4	84.00	29.14	57.9	70.33	18.56	4	.69
8.5	133.33	25.72	65.5	109.00	17.58	4	1.35
5.8	39.00	19.47	72.6	40.00	13.23	4	-0.07
63.0	39.33	8.02	40.0	36.33	1.53	4	.64
52.0	14.67	1.16	33.0	13.33	2.08	4	.97
65.0	17.33	2.52	21.0	12.33	5.36	4	.90
42.0	14.00	3.46	27.0	11.67	3.05	4	.88
80.0	16.67	1.53	34.0	9.67	6.11	4	1.93
56.0	11.00	2.00	25.0	6.33	1.16	4	3.50

LIVE OAKS --SOCIAL SCIENCE TESTS

This test was designed to assess the extent to which the objectives of the LIVE OAKS SOCIAL SCIENCE Program had been met. These objectives were described by the teacher to the test constructor during a visit by the constructor to the Great Oaks Administration Building and in subsequent telephone and written communication. The teacher provided the test constructor instructional materials including several textbooks used in the Live Oaks program. The Social Science Test as it appears in Appendix V is largely based on these materials. The material covered in the Live Oaks program included the following areas; general psychology; social psychology, sets and probability, economics, personality theory and law. Items were written for each of these areas using the instructional materials and the teacher's tests as a guide. Items prepared by the examiner were reviewed and edited by the teacher before the final form of the test was administered to the Live Oaks students. When the test was administered to students in May there were three students remaining in the program. Though it might seem more informative, with so few students, to report individual scores, group averages are given in the interest of preserving individual students anonymity.

Results

Test Totals:

Number of items analyzed	97
Mean	69.66
Mean item easiness (proportion answered correctly)	0.718
Percentage of students answering:	
80-100% of items correctly	33.33
60-79% of items correctly	66.66
Psychology (items 1-25)	
Number of Questions	25
Mean Item Easiness	0.733
Social Psychology (items 26-31)	
Number of Questions	6
Mean Item Easiness	0.386
Sets and Probability (items 32-41)	
Number of Questions	10
Mean Item Easiness	0.83
Economics (items 42-62)	
Number of Questions	21
Mean Item Easiness	0.825

Personality Theory (items 63-86)	
Number of Questions	24
Mean Item Easiness	0.569
Law (item 87-97)	
Number of Questions	11
Mean Item Easiness	0.933

Discussion

It is apparent from an examination of the different item easiness means that the students performed better on certain sections of the test. The students did least well in the sections on social psychology and personality theory. The items in these sections do not appear to be of greater difficulty. However, it should be noted that items in these two sections were based on the instructor's lecture notes and abbreviated handouts he had given the students. Perhaps the lack of a textbook covering the social psychology and personality theory subject matter partially explains the poorer performance in these areas.

Despite difficulty in these two areas, one of the three students answered 83% of the items correctly. The remaining students answered 74% and 60% of the items correctly. If the troublesome sections had been omitted from the test the percentages of items answered correctly would have gone up to 91%, 82%, and 65% respectively. The examiner feels that these overall results indicate that the Live Oaks students have mastered the objectives set for them by their instructor in a more than satisfactory manner.

It is difficult to compare these results to those that might have been obtained in a traditional high school program as these subjects are not usually taught in such schools. However, in the opinion of the examiner two thirds of the Live Oaks students have performed better than the average undergraduate would be expected to on test covering their subject matter.

LIVE OAKS--CAREER TEST

The Career Test was designed, as a criterion-referenced test, to measure the achievement of the Live Oaks program objectives relating to student awareness of, and knowledge about career selection. The program's instructors and administrator hoped to provide the students with exposure to a wide variety of social science careers. It was felt that, as a result of their experiences in the program, students would have achieved the following: (a) identified a career field of interest to them, (b) know the type and amount of training necessary to enter the career of interest, (c) know where such training was available, and (d) have a greater awareness of self in relation to the career area of choice.

Because these objectives do not lend themselves to more objective measurement, an open-ended "test" was devised to measure goal attainment. A copy of the test and students' responses can be found in Appendix V .

Results

The following are summaries of answers to the questions on the Career Test.

All students listed at least six different social science professionals with whom they had spent some time. One student responded more specifically than the others, giving the names of agencies where the professionals worked as well as the type of professional visited. The students all indicated that they had had exposure to the range of typical social science professions.

All students said that they had spent more than ten hours meeting with from three to five social science professionals. It appears that they spent the greatest amount of this time at clinics and centers where they actually participated in providing services, such as a clinic for brain injured children. Evidently, they also spent a good bit of time with social workers, but it is not clear whether they participated in the work of these professionals or merely observed. Less time was evidently spent with professionals of higher status, such as psychiatrists, psychologists, and lawyers. This is not unexpected, as these workers have many demands on their time and are less likely to engage in activities which offer an opportunity for participation by untrained volunteers.

The students all indicated that they had been somewhat interested in a social science career when they began the

PPSP, and two had identified a particular social science occupation at test time. The remaining student was still somewhat interested in social science as a career, but was also interested in several careers not related to social science.

Two of the students identified social work, either with "kids" or "young people" as their career choice. The other student did not indicate a particular career choice.

The students did not appear to have a good understanding of the training required for their career choice, or of where that training was offered. One student who indicated social work as her career choice then said she would seek training in "Fine Arts--photography". Another student thought that no post-secondary training was necessary for the career of speech and hearing therapist.

The most interesting answers were in response to questions about the impact of PPSP experiences on their career selection. All three students indicated that they were more aware of the verities of social work, especially dealing with "red tape" and being paid low "wages."

Finally, one student made a telling comment about her experience with PPSP classwork. She said that she had learned that having little or no class work to do was not as nice as she had thought and that it is much better to know what you want to do and work at it. This is an important lesson to have learned, of course, but it seems an indictment of the program nevertheless that a student learned that boredom is not better than hard work.

In summary, it appears that the Live Oaks program did a reasonable job of exposing the students to a variety of social science professionals and a good job of increasing students self-awareness in relation to career selection. However, the objectives relating to knowledge of training do not seem to have been met with these students.

PENTA--HEALTH

The data included in this section includes standardized achievement and interest measures, the results of criterion-referenced tests, and student discussion of the results of their program, for the Penta students.

The results of the achievement and ability tests indicate that Penta students are high achievers. Their scores on all the achievement and ability subtests are in the 80th percentile or better. Comparison between the PPSP group and their control group indicate that PPSP students performed as well as the control group on all subtests except on the U.S.A. achievement subtest. On the U.S.A. test, control students scored better than the PPSP group. (see page 38). The control group of students was selected by virtue of similar past achievement and comparable vocational interests. Thus, students in the PPSP program maintained a similar level of achievement as their counterparts, even though their curriculum was very different. Additionally, data from the criterion-referenced tests indicates that students have mastered the material presented in their courses, except for the calculus material, where the results were less than expected.

The data from the career tests and informal interviews seems to indicate that Penta PPSP students are very goal-oriented and aware of various career opportunities. Overall, students were satisfied with the Penta PPSP, with the major source of dissatisfaction being a slight lack of integration and coordination of efforts. The two most favorable aspects of the program were the science classes and the field experiences.

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TABLE XXVI

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Penta PPSP Group

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standa 1974
STS (n = 10)					
Abilities	43.70	88.5	49.40	94.5	7.71
Non-verbal	43.70	88.5	49.40	94.5	7.71
Verbal	42.00	88.5	44.20	88.5	7.02
Achievement					
Reading	51.20	91.9	50.00	88.5	8.12
English	50.40	88.5	51.40	88.5	8.51
Math	42.60	95.5	45.50	97.1	6.34
Science	49.30	95.5	50.30	94.5	7.32
The U.S.A.	42.00	84.1	45.80	84.1	9148
Solving Everyday Problems	41.80	88.5	45.30	91.9	3.92
Composite Scores					
Battery Comp.	363.00	93.3	381.90	94.5	41.35
Total Ability	85.70	88.5	93.60	94.5	12.59
Basic Skills	144.20	94.5	146.90	94.5	16.49
Interests					
Music	5.4		5.6		3.17
Art	5.6		5.9		2.91
Mathematics	7.2		6.4		2.36
Science	8.7		7.8		0.90
Social Science	6.6		5.7		1.36
English	7.1		5.6		1.30
Foreign Language	7.2		5.7		1.33
Vocational	5.4		4.2		3.23

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TABLE XXVI

Standard Deviations of Achievement, Ability,
terest Scores in the Penta PPSP Group

Means					
1974		1975		Standard Deviation	
Raw Score	% ile	Raw Score	% ile	1974	1975
43.70	88.5	49.40	94.5	7.71	7.34
43.70	88.5	49.40	94.5	7.71	7.34
42.00	88.5	44.20	88.5	7.02	5.90
51.20	91.9	50.00	88.5	8.12	8.69
50.40	88.5	51.40	88.5	8.51	8.27
42.60	95.5	45.50	97.1	6.34	5.32
49.30	95.5	50.30	94.5	7.32	7.23
42.00	84.1	45.80	84.1	9148	9.53
41.80	88.5	45.30	91.9	3.92	3.82
363.00	93.3	381.90	94.5	41.35	40.03
85.70	88.5	93.60	94.5	12.59	10.10
144.20	94.5	146.90	94.5	16.49	16.32
5.4		6.6		3.17	2.33
5.6		5.9		2.91	2.51
7.2		6.4		2.36	2.80
8.7		7.8		0.90	2.56
6.6		5.7		1.36	2.33
7.1		5.6		1.30	2.69
7.2		5.7		1.33	2.28
5.4		4.2		3.23	2.32

TABLE XXVI

Means and Standard Deviations of Achievement, Ability and Interest Scores in the Penta PPSP Group

	Means				
	1974		1975		Standar
	Raw Score	% ile	Raw Score	% ile	1974
CMI (n = 9)					
Attitude	41.00	88.0	42.60	92.0	3.43
Knowing Yourself	14.22	45.0	16.20	66.0	1.55
Knowing About Jobs	18.56	95.0	18.30	78.0	1.64
Choosing a Job	15.22	59.0	16.00	64.0	1.23
Looking Ahead	16.89	82.0	17.00	80.0	2.02
What Should They Do	12.89	80.0	12.30	66.0	1.97

TABLE XXVI

d Standard Deviations of Achievement, Ability Interest Scores in the Penta PPSP Group

Means				Standard Deviation	
1974		1975			
Raw Score	% ile	Raw Score	% ile	1974	1975
41.00	88.0	42.60	92.0	3.43	2.15
14.22	45.0	16.20	66.0	1.55	1.08
18.56	95.0	18.30	78.0	1.64	1.27
15.22	59.0	16.00	64.0	1.23	1.84
16.89	82.0	17.00	80.0	2.02	1.90
12.89	80.0	12.30	66.0	1.97	2.76

TABLE XXVII

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Toledo Control Group

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standard Dev 1974
STS (n = 10)					
Abilities					
Non-verbal			43.10	84.1	
Verbal			47.00	93.3	
Achievement					
Reading			49.70	88.5	
English			52.80	91.9	
Math			39.50	88.5	
Science			49.70	94.5	
The U. S. A.			50.30	91.9	
Solving Everyday Problems			45.90	93.3	
Composite Scores					
Battery Comp.			378.00	93.3	
Total Ability			90.10	91.9	
Basic Skills			142.00	93.3	
Interests					
Music			8.30		
Art			5.30		
Mathematics			5.70		
Science			7.60		
Social Science			6.20		
English			7.40		
Foreign Language			5.50		
Vocational			4.50		

TABLE XXVII

andard Deviations of Achievement, Ability,
est Scores in the Toledo Control Group

	Means 1974 Raw Score	Means 1974 % ile	Means 1975 Raw Score	Means 1975 % ile	Standard Deviation 1974	Standard Deviation 1975
			43.10	84.1		10.29
			47.00	93.3		6.47
			49.70	88.5		9.58
			52.80	91.9		9.58
			39.50	88.5		11.88
			49.70	94.5		5.16
			50.30	91.9		9.60
y						
			45.90	93.3		3.33
			378.00	93.3		49.89
			90.10	91.9		14.52
			142.00	93.3		23.22
			8.30			1.79
			5.30			2.45
			5.70			2.79
			7.60			1.69
			6.20			1.94
			7.40			1.62
e			5.50			2.29
			4.50			1.96

TABLE XXVII

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Toledo Control Group

	Means				Standard De
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	1974
CMI (n = 10)					
Attitude			40.50	71.0	
Knowing Yourself			16.40	66.0	
Knowing About Jobs			18.60	78.0	
Choosing a Job			15.80	64.0	
Looking Ahead			16.80	80.0	
What Should They Do			11.80	66.0	

TABLE XXVII

ndard Deviations of Achievement, Ability, st Scores in the Toledo Control Group

Means 1974 Raw Score	Means 1974 % ile	Means 1975 Raw Score	Means 1975 % ile	Standard Deviation 1974	Standard Deviation 1975
		40.50	71.0		3.23
		16.40	66.0		2.37
		18.60	78.0		1.28
		15.80	64.0		2.56
		16.80	80.0		1.40
		[illegible]1.80	66.0		2.04

INSTRUMENT K

Instument K asked respondents to indicate positive aspects of their PPSP and ways in which the program could have been made better so that future implementation of such programs would benefit from their experiences. Students were asked to role-play the position of an educational planner who is establishing a program similar to the PPSP and is responsible for all decisions attendant to setting up such a program. This was done in an attempt to get the students to think beyond the specifics of their particular program and produce general thoughts about what leads to success--or failure in a PPSP. Then after they had come to some general conclusions about how a PPSP should be run, the students were asked to evaluate their own program in light of their general standards.

Penta J.V.S.--Health

Students in the PPSP at Penta J.V.S. (which was conducted at Owens Technical College) were administered Instrument K via a structured group interview procedure outlined in the guidelines given in Appendix K . Portions of the interview were tape recorded and a review of comments from the tape will temper the summary of students' responses to follow.

Selection of students: academic ability: Most students indicated that above average ability would be necessary, especially in math and science. Several students wrote tnat motivation was of equal or greater importance to academic ability and this point was reiterated in the subsequent taped discussion. Students agreed that motivation was very difficult to measure but that some attempt should be made considering the importance of motivation to the success of a PPSP.

Selection of students: vocational interests: Most students agreed that students selected for a PPSP should be interested in one general vocational field such as health, business, or engineering. One student felt that several vocational interests should be represented to allow a variety of experiences within a program.

What was right or wrong with your PPSP's method of selection? Some of the students felt that the method of selection was good, although the program should have been more widely publicized so that more would have applied. Others felt that the selection procedure had not been strict enough, that higher standards for academic ability should have been invoked.

How would you locate and inform potential students? Most students involved high school counselors, who, the students may have felt, would know students the best and were already able to disseminate information easily. Others suggested the use of newspaper announcements, speakers to visit high schools and announcing the availability of the program during students' sophomore year at an assembly.

Selection of teachers: academic background: Students seem to agree that the important ingredient to successful PPSP teaching was--interest, in the students and in the program. This interest should be, students suggest, combined with superior teaching ability and knowledge of subject matter.

Selection of teachers: vocational background: Most students felt it would be best if a PPSP teacher had had previous vocational experience in the career field (such as health) around which the PPSP is centered. It was suggested that a panel of persons from the career area participate in the selection of teachers.

What was right or wrong with your PPSP's method of teacher selection? Again, the feeling that teachers should have "interest" in the program and the students is reflected in students' judgments about teachers selection at Penta. Several students indicated that some of their teachers had not shown this interest. There was some feeling expressed that teachers had been chosen more on the basis of availability rather than interest, teaching skills, or vocational background. There were several comments, however, indicating that at least one teacher was very well chosen.

Selection of materials and texts: The students made a variety of suggestions about materials useful in a PPSP including; professional journals, career related laboratory materials, and challenging texts, preferably approved by a professional in the career of interest. Generally, the students felt that the purchase of materials relevant to the career area should be given priority.

What was right or wrong with your PPSP's selection? Student comments indicated that some classes had been completely without texts or the texts arrived late, while other classes had an excellent selection of texts and materials available.

Organization of PPSP: transportation: The students indicated that transportation facilities and organization were excellent. The only complaint was that "longer days" were necessary for field trips.

Class scheduling: Most students indicated that, except for occasional personality clashes, having the same people in all of the classes had been helpful because of shared ideas and resources.

Choice of Field experiences: Most students seemed to feel that this aspect of the program requires careful planning and organization. Some of their suggestions include; coordinate field experiences with classwork, variety in fields visited, careful public relations with potential field experience personnel, individual counseling on choice and timing of field experiences to a health professional.

What was right or wrong with your PPSP's organization? Though one student said that some classes "tended not to be organized", several students identified a problem with the organization of field experiences.

Coordination between the PPSP and the home school: extracurricular activities: guidance and information: Students indicated that a routine method of communicating home school information to PPSP students and that a teacher in the PPSP should work part time in a guidance capacity. They also said that there was no way to completely solve coordination problems as long as the PPSP is conducted at a separate location.

What was right or wrong with the coordination between your PPSP and your home school? The Penta students all agreed that there had been very poor coordination. Some students had failed to receive important information about scholarship and graduation deadlines.

Academic program: integration with field experiences: The students agreed that this was a very important aspect of the program but that it was difficult perhaps impossible--to accomplish.

Integration of academic subjects toward occupational choice: Again, the students felt that this was a good idea, and in the case of math and science even essential, but often difficult to accomplish. One suggestion was that one teacher teach math and physics and another teach biology and zoology.

How does the amount and level of learning you derived from the PPSP compare with what you anticipated? All of the responses indicate that the students learned as much as they expected to in the PPSP.

With what you would have expected at your home school? All of the students indicated that the education they received in the Penta PPSP was superior to that which they would have expected in a standard curriculum.

Concept of PPSP: The students felt that, considering the limited number of applicants for the PPSP at their home high schools, a centralized program drawing students from a number of schools would probably be necessary and had worked well in their case. They felt that PPSP students in the health field should have a separate program in science and math classes and, of course, in field experiences, but could probably attend English and Social Science classes with other students. They did not feel that a single most important aspect could be identified as the program could only succeed as an integrated whole, but the priority of the aspects they identified as important would probably be as follows: field experiences, interested teachers, integration of academic program with career area and availability of essential materials and resources.

The second questionnaire, Instrument G, elicit comments which reinforced the general direction of the comments given in response to Instrument K. The students saw the science classes as the most positive aspect of the program, although math classes and field experiences were also mentioned. According to most students, the weakest portions of the program were the English and Social Science classes. In their comments the students indicated that the effectiveness of the classes seemed to them to be the result of the teacher's "interest" or the lack of it.

PENTA CAREER TEST

The Career Test was designed to measure the achievement of objectives relating to student awareness of, and knowledge about, career selection. The Penta PPSP goals were as follows: (a) Students would have identified a career field of interest to them, (b) Students would know the type and amount of training necessary to enter the career, (c) Students would know where this training could be obtained, and (d) Students would have gained a greater self-awareness in relation to career selection. The test is composed of open-ended questions, and more objective multiple choice items. Appendix X is a copy of the test and of students' responses.

To achieve these goals, the Penta program had taken its students on field trips and provided "hands-on" experiences at field sites. From their test answers, it is evident that most Penta students had been exposed to a wide variety of health professionals. The number of health professionals students indicated having met ranged from 19 to 4 with a mean of 10. Students appear to have spent the most time with health professionals from the career in which the student was most interested. That is, students planning to be nurses spent most of the field time with different kinds of nurses.

On the more objective portion of the test, the students also performed well. The mean item easiness of the twelve multiple choice items is .73 with a range from .50 to 1.00. On these twelve items, 40% of the students answered 80% or more of the items correctly, the remaining students answered between 59% and 80% of the items correctly. This performance shows that the Penta students were able to identify the personality characteristics, and training required for success in different health occupations and the duties of different health professionals.

Eight of the Penta students began the program with a particular health occupation as a fairly definite goal, and, of these, seven still retained this goal at the time of testing. Six students felt their interest in a health career had increased as a result of the PPSP, four felt that their interest had remained the same, and two that their interest had decreased. Altogether, these results appear to show that the Penta program was fairly successful in meeting its career related goals. It should be remembered that a decrease in interest is just as likely to be the result of an increase in self-awareness as of an increase in interest.

Though the degree of their interest may have changed, all but two of the students maintained the same occupational goal throughout the program. The students seemed to be aware of the amount and type of training that would be necessary to achieve their chosen occupational goal. All but three of the students were able to name three institutions that provided the training they desired.

All but one of the students felt that the field experience portion of the PPSP had had an impact on their feelings about career selection. With this one exception, the students' comments verify their increased self-awareness in relation to career selection.

Students indicated that their science courses influenced their interest in their careers but not their other courses. Several mentioned the importance of laboratory work as preparation for health work. Most of the students complimented their science teacher and indicated that he had positively influenced their interest in the health field.

Overall, the Penta PPSP appears to have met its objectives in the career knowledge and self-awareness area.

PENTA--CHEMISTRY

Objectives presented in the written curriculum guide and the teacher's description of the Penta chemistry program were useful in preparing appropriate test items. A copy of the textbook used and copies of a few tests he had given were also supplied by the teacher. In the brief meeting between the examiner and the teacher considerable time was devoted to discussion of the process-oriented objectives of the entire science program. Several of these objectives, for example the students' ability to formulate testable hypotheses, were tested in the open-ended portion of the chemistry test.

Items written by the examiner were **reviewed** and edited by the teacher. Topics covered by the objective test included:

1. Basic Concepts/Skills
2. Chemical Formulas and Equations
3. Periodic Table (atomic structure, electronegativity, bonding)
4. Mole Concept
5. Kinetic Energy (temperature, molecular motion, gas laws)
6. Solubility Phenomena
7. Organic Chemistry
8. Radioactivity
9. Principles of Reactions
10. Acid/Base Phenomena

The open-ended items dealt with:

1. Designing of Laboratory Procedures
2. Recording Observations
3. Identifying Variables
4. Stating Hypotheses
5. Testing Hypotheses

Results

Test Totals:

Number of Questions Analyzed	54
Mean	29.100
Median	29.500
Mean Item Easiness (proportion of items answered correctly)	.539
Percentage of students answering:	
80-100% of items correctly	0
60-79% of items correctly	30
50-59% of items correctly	30
40-40% of items correctly	20
30-39% of items correctly	20

Section Totals:

Basic Concepts/Skills (Items 1-3)

Number of Questions	3
Mean Item Easiness	.57

Chemical Formulas and Equations (Items 5-8, 21, 48, 49)

Number of Questions	7
Mean Item Easiness	.42

Periodic Table (Items 4, 13-19, 39, 40, 50, 51)

Number of Questions	11
Mean Item Easiness	.59

Mole Concept (Items 9-12, 32, 43)

Number of Questions	6
Mean Item Easiness	.42

Kinetic Energy (Items 20, 22-26, 36-38)

Number of Questions	9
Mean Item Easiness	.55

Solubility Phenomena (Items 28-31)

Number of Questions	4
Mean Item Easiness	.60

Organic Chemistry (Items 52-55)

Number of Questions	4
Mean Item Easiness	.50

Radioactivity (Items 33, 34)

Number of Questions	2
Mean Item Easiness	.85

Principles of Reactions (Items 27, 35, 46, 47)

Number of Questions	4
Mean Item Easiness	.50

Acid/Base Phenomena (Items 41, 42, 44, 45)

Number of Questions	4
Mean Item Easiness	.50

Open-Ended Items:

Designing Laboratory Procedures (Item 56)

Important Components of Procedure Design	Number of Students Including Component in Answer
Description of equipment needed	4
Recognition of importance of controlling variables (temperature in this case)	4
Description of generally workable procedure	2
Description of important procedural steps (such as drying residue before weighing)	0
Recognition of need to use formula weight of the compound on the calculations	5
Description of generally correct method of calculating the solubility from the experimental data	1

Formulating Hypotheses to Explain an Observed Phenomenon (Item 57)

Type of Hypothesis Given in Student Answer	Number of Students
Testable hypothesis, consistent with observations, concisely stated	2
Testable hypothesis, consistent with observations, very generally stated and requiring some "reading between the lines"	2
Testable hypothesis, not consistent with observations	1
No hypothesis, one or more guesses	4
No hypothesis, no guesses	1

Testing Hypotheses (Item 58)

Type of Test Given in Student Answer	Number of Students
Practical test which would have given valid information about strength of hypothesis	0
Practical test based upon incorrect assumptions	2
Suggestions which could have been developed into practical test	1
Suggestions of one or more "things to try"	1
No specific suggestions for testing, attempted a general answer	5
No answer given	1

Recording Observations (Item 59)

Number of Observations Recorded	Number of Students
Two observations	7
One observation	3

Identifying Variables (Item 60)

Number of Variables Listed	Number of Students
Two variables	4
One variable	3
No acceptable variables*	3

*All students wrote answers to the item. However, some answers were not considered to be acceptable. For example, it was not acceptable for a student to identify "the type of chemicals in the bottle" as a variable affecting the system. The chemicals in the bottle constituted the system being observed and as such could not be considered a variable in the system. It was also not acceptable to give an answer such as "the presence of foreign matter would affect the system" since this would probably be true for any chemical system.

PENTA--CHEMISTRY

Discussion of Results

Objective Test

The Penta chemistry items tested the ability of students to interpret and apply concepts and principles. Knowledge of important generalizations and procedures was required of students, but recall of specific chemical facts or properties was not emphasized. Neither the teacher nor the examiner anticipated that such a test would be easy for students. Individuals who correctly answered better than 50% of the items on this test have done well.

The test results show that 6 of the 10 students in the Penta PPSP answered more than 50% of the objective items correctly. Only 2 students answered less than 40% of the items correctly. Subsection results show that the students found the two-item radioactivity subsection to be the least difficult, while the chemical formulas/equations and the mole concept sections were the most difficult. Interestingly, in these sections the item missed by the greatest number of students was a knowledge or recall level question (item 6) which required students to select the correct formula for the sulfide ion. This result is consistent with the teacher's stated deemphasis of memorization.

Overall, the students answered 53.9% of the objective items correctly. In the opinion of the examiner this indicates that the course objectives have been satisfactorily attained by the students.

Open-Ended Test

Because efforts were made during the PPSP to increase students' problem-solving skills, items which placed students in problem situations were designed. These items could have been designed for any of the Penta science tests since problem solving and decision making were encouraged in physics and life science as well as in chemistry. The principal reason for choosing chemistry as a vehicle for testing these objectives was that the blue bottle system, a compact interesting system requiring little preparation and equipment, is more closely related to chemical principles than those of life science or physics.

Item 57 required students to plan an experimental procedure for determining the solubility of a salt in water. The chemical principles that were to be applied were simple:

there is a limit to the amount of a salt that can be dissolved in a given amount of water at a particular temperature; the number of grams of salt dissolved can be converted to moles by the operation $\frac{\text{grams salt dissolved}}{\text{formula weight salt}}$. Since the chemistry involved only basic skills and general knowledge, the item was primarily a test of students' ingenuity and ability to derive a practical plan rather than a test of students' knowledge of chemistry.

The results of the item indicate that most of the students would experience considerable confusion and difficulty if they were taken to their laboratory stations, given a salt sample and asked to determine its solubility. Several students realized that they would have to decide what equipment to use, that they would have to control temperature and that they would need to calculate the formula weight of the salt, but only two students were able to describe a generally workable procedure. Neither of these individuals supplied important procedural steps such as drying the undissolved salt before weighing.

Student mastery was not anticipated. Experience and published research have shown that the skills called for by this item are very difficult to develop in students. However, the item results indicate that, if the teacher feels that achievement of these skills is an important course objective, more open-ended laboratory work may be in order.

Items 57-60 were based on the blue bottle system. This system consisted of a capped bottle or flask containing a solution of glucose, sodium hydroxide and methylene blue. When at rest the solution in the container was colorless; however, when the container was shaken the color of the liquid dramatically changed to blue. When the container was set aside, the liquid again became colorless.

The blue bottle system had never been explained to the students during the PPSP science program. Yet, it was felt that the students would have acquired in their science courses the basic science concepts which would enable them to work with the system. As a result, the test exercises designed to accompany the phenomena hopefully provided a measure of a student's ability to perform the intellectual operations of observing, hypothesizing, etc., rather than a measure of his technical knowledge of chemistry, physics, or biology.

The test results for item 59 shows that all students recorded at least one observation. A few of the observations went beyond the obvious color changes to note the duration of the blue color, the effect of varying the amount of shaking, and the effect of varying the surface area of the liquid. These students have learned to pay attention to details and to manipulate a system so as to produce additional observations.

Item 60 required students to identify the variables which might be important in the system. The ability to make careful observations and identify variables is crucial in scientific problem solving. Item results indicate that 7 of the 10 students were able to name one or more variables. In the opinion of the examiner, students did quite well on this item. They seem to have developed an understanding of the factors that affect the course of chemical reactions.

Students had a more difficult time formulating a testable hypothesis to explain the blue bottle phenomenon. (Item 58) Only two individuals wrote a concisely stated, testable hypothesis which was consistent with the observations made of the system.

Item 59 results show that none of the students was able to design a practical test procedure which would give valid information about the correctness of the hypothesis made in item 58. This result is not unexpected, however, in view of the results of item 58. Students who were unable to formulate a testable hypothesis could not be expected to design a workable test. The results of item 59 are also consistent with the findings in item 56 in which students experienced difficulty in designing a laboratory procedure to determine the solubility of a salt.

If the teacher feels that hypothesis formation and testing are important skills to develop, the test responses indicate that students should be given more opportunities or different opportunities to practice the skills.

PENTA -- LIFE SCIENCE

The life science test for students in the PPSP in Penta was based upon the written curriculum guide prepared in 1973 for the Ohio Department of Education, text material covered by the students, and direct correspondence and conversations between the teacher and the examiner. After the items were constructed, they were reviewed by the teacher who made suggestions regarding topic emphasis and item revisions.

The test included the following topics:

Cell Physiology and Life Processes
Classification of Living Things
Plant and Animal Physiology
Microbiology and Immunization
Nutrition
Evolution and Origins of Life
Behavior
Experimental Design and Interpretation of Data

Vertebrate Physiology with emphasis on human physiology received the greatest attention in testing. Taken together vertebrate physiology and cell physiology constituted nearly one half (27/60) of the test.

Results

Test Totals:	
Number of items analyzed	59*
Mean	34.90
Median	35.50
Mean Item Easiness	.592
Percentage of students answering:	
80-100% of items	0
60-70% of items	50
50-59% of items	30
40-49% of items	20

*item 44 was omitted from the scoring

Section Results:

Plant and Animal Physiology (Items, 1, 14, 17, 19, 25, 27-32, 36-40, 42, 45, 48)	
Number of Questions	19
Mean Item Easiness	.58
Cell Physiology and Life Processes (Items 2, 3, 8-11, 18, 21, 51-53)	
Number of Questions	11
Mean Item Easiness	.60
Classification of Living Things (Items 4, 5, 7, 12, 13, 15, 20, 24)	
Number of Questions	5
Mean Item Easiness	.46
Evolution and Origins of Life (Items 6, 16, 22, 50)	
Number of Questions	4
Mean Item Easiness	.53
Behavior (Items 23, 54, 55)	
Number of Questions	3
Mean Item Easiness	.67
Nutrition (Items 26, 33, 41, 43, 49)	
Number of Questions	5
Mean Item Easiness	.66
Microbiology and Immunization (Items 46, 47, 34, 35)	
Number of Questions	4
Mean Item Easiness	.73
Experimental Design and Interpretation of Data (Items 56-60)	
Number of Questions	5
Mean Item Easiness	.66

Discussion of Results:

Most of the items on the Penta life science test were written at the knowledge level. Some demanded knowledge of specific facts or terminology, but a large number required knowledge of procedures, processes, or generalizations. Other items required the students to bring together knowledge of two or more different definitions or concepts. Undoubtedly, the presence of these types of items made the test more challenging than a test of basic factual information over the same material. In the opinion of the examiner, students who correctly answered 50% or more of the items have satisfactorily met the course objectives. Students answering better than 70% of the items should be considered to have done very well.

The actual results show that five of the ten students correctly answered at least 60% of the items. Eight students (80%) correctly answered 50% or more of the items while no student answered less than 40% of the items correctly. Overall, the students did quite well indicating that the course objectives represented by the test items have been adequately met.

It is interesting to note that although the mean item easiness for the test was 0.592, there were many items whose easiness was found to be very high or very low. Complete mastery (easiness = 1.00) was attained for items 4, 26, 28, 36, 37, 39, 43, 47, 48 and 52. On the other hand, items 8, 13, 19, 30, 42, and 49 were correctly answered by one or fewer students. Most probably this outcome is a reflection of the emphasis given to the topics during the life science course. Of the six items giving the students greatest difficulty, four: 8, 13, 19, and 42 required recall of specific facts rather than broad generalizations.

When the results are viewed section by section it can be seen that the mean item easiness ranged from an acceptable 0.46 for the classification section to a strong 0.73 for the microbiology and immunization section. The mean item easiness scores for the two sections most heavily emphasized by the course and by the test were 0.58 for plant and animal physiology and 0.60 for cell physiology and life processes. These data indicate that students have achieved at least moderate success in meeting the objectives of all of the areas covered by the Toledo life science program and have acquired a solid foundation in the areas stressed.

PRECALCULUS TEST

This test was designed to assess the effectiveness of the pre-calculus mathematics instruction the students received during the school year (1973-1974). The test constructor interviewed the teacher of the course and obtained a description of the objectives which she had covered in the course. Following is a list of the basic areas and the specific concepts which the teacher wanted the students to learn followed by the number of the test question(s) which relates to each concept.

Algebra

Solving simultaneous equations (17)
Solving equations in one variable (1)
Simplifying algebraic expressions (2)
Using logarithms (5)
Evaluating determinants (16)
Setting up and solving proportions (3,4)
Expressing numbers as powers of ten (6)

Geometry and Analytic Geometry

Properties of circles (7,8)
Properties of ellipses (7)
Properties of lines and their graph (9,18,19,20)
Basic vector arithmetic (15)

Trigonometry

Properties of angles (14)
Properties of the sine function (10)
Finding the sine and cosine of angles (11,12,13)

The test was administered to the students in their high school. The evaluator was not present for the administration and therefore cannot make any statements about the motivation or behavior of the students during the test administration. However, from some of the answers on the test it appears that some students used electronic calculators during the test.

Of the ten students who took this test, six scored 80 percent or better correct. The four remaining students all scored 60 to 70 percent correct

The most frequently missed questions were questions 7, 13, 3, 14, and 5.

Question 7 covered the concepts of the properties of circles and ellipses. Forty percent of the students missed the question asking for the center of a given circle and none missed the part asking for the radius. Ten percent of the students missed the question asking for the center of an ellipse, however, 100 percent of the students missed the questions asking for the length of the major and minor axes. All students gave the same answer, which was one half the actual length of the axes. Of the forty percent who missed the question on the center of the circle, all had the right numbers, but the wrong signs. The students seem to have grasped the concepts tested by this question in part, but have failed to master the entire concept. With both the circle and the ellipse the basic concepts were demonstrated adequately, but the finer details were not.

Question 13 pertained to finding the sine and cosine of an angle. All ten students missed some or all of this question. The particular angle given in this problem was 135° and has a sine of .707 and a cosine of -.707. Four of the ten students had incorrect values for both the sine and cosine, and neglected the negative sign on the cosine. The remaining six students had the correct values, but neglected the negative sign. The four students who missed both parts of this question also missed the other two questions dealing with this topic (11,12). These four students do not seem to understand the concepts of sine and cosine. The remaining six got all three questions partially correct, but missed the crucial negative sign on the numbers. This could be just an oversight, but since all the students missed this aspect it seems to indicate either carelessness on all students' part or a misunderstanding of the concept.

Question 3 related to the concept of setting up and solving proportions. Ninety percent of the students missed the problem. Of the nine students, 3 did not attempt to solve the problem, while the remaining six all had the same wrong answer. This may not necessarily indicate a misunderstanding of the concept. Problem 4 also deals with this concept and was answered correctly by all the students. Problem 3 was a story problem and the difficulty may have been in deciding which information to use and how to set it up, rather than the actual concept of proportions.

Question 14 pertained to the properties of angles and required finding the reference angle of an angle greater than 360°. Seventy percent of the students answered this question incorrectly, the majority giving the complement of the desired angle. This appears to be more an oversight than a misunderstanding of the concept.

Question 5 dealt with the use of logarithms and fifty percent of the students missed it. There was no consistent pattern to the wrong answers. Most of the errors on this problem appeared to be due to arithmetic mistakes.

In summary, this test shows that a majority of the students have mastered the material presented in this course. Students had little or no difficulty with the concepts of algebra. Similarly, students had little or no trouble with most of the questions on geometry and analytic geometry. The questions dealing with trigonometry posed considerable difficulty for most of the students; of the three areas, this material seemed to have been learned the least.

Most of the errors in this section could be eliminated if the students would draw a picture of the problem first; no one had sketched on his test paper. This might remedy many of the errors in this section.

Appendix X is a copy of the test. The correct answers to the questions are given in the answer spaces.

CALCULUS TEST

This test was designed to cover the material presented in the calculus course which the students took in the 1974-1975 academic year. The test constructor interviewed the teacher and obtained the objectives of that course. The test constructor was not present during the test administration and thus, cannot make any statements about the behaviors or attitudes of the students during testing.

Pursuant to those objectives, the test covered three broad areas. Questions 1-9 pertain to algebra and analytic geometry, questions 10-16 and 23-25 pertain to general calculus and finding and using derivatives, and questions 17-22 pertain to finding and evaluating integrals.

Of the ten people who took this test, five people scored 50% of the items correct, two people scored 40% correct, and three got only 30% correct.

In the first section of the test covering algebra and analytic geometry, questions 1, 5, and 7 were missed by 50% or more of the students. Question 1 pertained to the properties of rational numbers. Forty percent answered this question correctly. Those who answered incorrectly show an incomplete understanding of this concept. It would appear that they know something about rational numbers, but have not mastered the entire concept. Question 5 pertained to finding the X intercept of a line. Twenty percent answered this question correctly. Those who answered incorrectly all had the same answer which was the Y intercept of the line. It would appear that all of the mistakes can be attributed to misreading the question. Question 7 required identification of the equation of a circle. Thirty percent answered this correctly. Those who answered incorrectly all had the same incorrect answer. The incorrect answer was very close to the equation of a circle; the difference being a subtraction sign instead of an addition sign. A possible explanation of the errors is a misreading of the answers provided on the tests. The remaining questions in this section posed minimal difficulty for the students. On the whole, this material was learned well with the majority of the errors due to oversight rather than not knowing the material.

The second section, dealing with general calculus and finding and using derivatives posed more difficulty for the students. Questions 11, 12, 13, 16 and 23 were answered incorrectly by fifty percent or more of the students. Question 11 was missed by all of the students. Question 11 was an application of the theoretical definition of a derivative. All of the students gave the same answer. The answer they gave was the actual derivative of the given expression. The question, however, asked for an expression of the definition of the derivative for this equation. There are two possible explanations for the errors. One is that the students did not understand the question and what it required. The other is that the students did not understand the definition of a derivative and thus, were not able to answer the question. It is difficult to decide which hypothesis is correct.

Question 12 required the application of derivatives to find the slope of a tangent line. Fifty percent of the students missed this question. Of these, forty percent did not give an indication of attempting this problem. There are many possible explanations for this, but given the very limited data it is impossible to state one with any confidence.

Question 13 required finding the derivatives of two functions involving powers of X. One person answered both parts correctly, three students answered only one part correctly, and six students missed both parts of this question. All six of these gave no indication of a possible answer. They did, however, put question marks in the answer spaces and one person wrote "do not understand" in the answer space. This would indicate that 60% of the students were unclear about what this question was asking and thus, could not solve it. The problem seems to be with the wording of this question, rather than the knowledge tested, because other questions asking for derivatives were not missed with this great a frequency. The three people who missed only half of this question indicate an understanding of the technique, but careless errors in its application.

Question 16 required finding the extrema of a function. Twenty percent of the people answered this question correctly. The remaining eighty percent showed no consistent pattern in their answers. An explanation is difficult, particularly in light of the fact that question 14 which is testing the same knowledge and is stated in almost the same language was missed by far fewer people (40%).

Question 23 required finding the derivative of a logarithmic function. All of the students missed this question. Nine of the ten students had the same answer and their answer indicated that they do not understand this concept.

The third area involved finding and evaluating integrals. Questions 17, 21, and 22 were answered incorrectly by 50% or more of the students. Question 17 required integrating a function of a fractional power of X. The answers indicate a great deal of confusion about the technique used and also many arithmetic mistakes. Question 18 required using the same technique without the fractional powers of X and was answered incorrectly by only 40% of the students. This tends to show that the students understand the basic of integration but were confused by the fractional exponents.

Questions 21 and 22 required the integration of a trigonometric function and a logarithmic function, respectively. All of the students missed these questions. Their answers for both these questions show no consistent pattern and indicate that the students do not understand these two techniques of integration.

Overall, this test shows that the students did not perform as well as anticipated. There were many careless errors and many concepts were apparently not learned by the students. The techniques of differentiation and integration, particularly of the more complex functions, were not adequately demonstrated. The results of this test would seem to indicate that students have, partially meet the objectives of this course.

PENTA Physics

Objectives presented in the written curriculum guide and the teacher's description of the Penta physics program were helpful in idenfying appropriate test items. In addition the teacher supplied the examiner with a copy of the textbook used and copies of several tests he had administered to his students.

Items written by the examiner were reviewed and edited by the teacher. Topics covered by the test included:

1. General skills and knowledge
2. Mechanics
3. Heat, gas laws, buoyancy
4. Wave phenomena (sound and light)
5. Surface tension, osmosis
6. Electric phenomena

Results

Test Totals:	
Number of Questions Analyzed	51
Mean	30.700
Median	30.167
Mean Item Easiness (proportion of items answered correctly	0.480
Percentage of students answering:	
80-100% of items correctly	0
60-79% of items correctly	20
50-59% of items correctly	20
40-49% of items correctly	40
30-39% of items correctly	20
General Skills (Items 1-4)	
Number of Questions	4
Mean Item Easiness	.35
Mechanics (Items 5-15)	
Number of Question	11
Mean Item Easiness	.48
Heat, Gas Laws, Buoyancy (Items 16-24)	
Number of Question	9
Mean Item Easiness	.51
Wave Phenomena - sound and light (Items 27-44)	
Number of Questions	2
Mean Item Easiness	.49

Surface Tension, Osmosis (Items 25-26)	
Number of Questions	17
Mean Item Easiness	.49
Electrical Phenomena (Items 45-52)	
Number of Questions	21
Mean Easiness	.48

* Item 35 was omitted by the instructor

Discussion

Most of the physics items could not be answered by simple recall of factual material. The typical question presented the student with a problem which required him to apply a principle or formula. Answering the questions involved a series of steps including mathematical manipulation of the numerical information presented in the item. Each step was a potential source of student error. In a test of this type students who correctly answer 50% or more of the items have done well.

The test results show that four of the ten students answered better than half of the items correctly. Only two students answered less than 40% of the items correctly. The examiner feels that these overall results indicate that the Penta PPSP students have satisfactory knowledge of the material covered by the test.

A section-by-section examination of the test results indicates that, with the exception of the general skills category, students found the various sections of the test to be approximately equal in difficulty. There is no obvious explanation for the difficulty experienced in the general skills section. In retrospect, it should be pointed out that the results of a test section only four items in length may not present a truly representative picture of student achievement in the skill area covered by the items in the section.

The data included in this section are standardized achievement and interest measures for the Firestone students, results of criterion referenced items, and student plans and reports of their program.

Without question, the Firestone students were very high achieving students. The comparison with the control group seems to indicate that the PPSP students performed on achievement and interest measures as well as their control; students who were chosen to be of comparable past achievement, and apparent vocational interest. Consequently, although the PPSP program altered the nature of the standard curriculum students would normally take, the PPSP students continued to perform well on many varied indices of achievement. In addition, the criterion-referenced tests seem to indicate that the students mastered a high degree of relatively specialized course content and knew how to plan towards their career goals.

The data gathered and the informal interview seem to indicate that the students were very goal-oriented and seemed to want little time in the program to be wasted. They appeared extremely concerned that they be prepared enough to be selected in a career field of their choice and enough to succeed in the college courses if they were chosen. Consequently, a negative attitude was expressed toward the coursework they received in mathematics.

The field work was seen by the students as the most attractive feature for entering the program. Although the students felt that this portion may not have been integrated into the program as well as it might have been, this feature remained a strong positive force. In addition, students felt that, except for mathematics, the education they had received was at least equal to if not superior to one that they would have received in a standard curriculum.

Means and Standard Deviations of Achievement, Ability, and Interest Scores in the Firestone PPSP Group
(n = 19)

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standar 1974
STS					
Abilities*	47.33	93.3			9.08
Non-verbal*	47.33	93.3			9.08
Verbal*	47.72	95.5			6.02
Achievement					
Reading	63.61	99.4	60.40	98.2	3.68
English	53.06	93.3	50.35	88.5	6.66
Math	46.22	97.7	47.05	97.7	6.85
Science	52.72	98.2	51.55	96.4	5.22
The U.S.A.	53.00	96.4	49.65	91.9	5.80
Solving Everyday Problems	44.28	91.9	42.68	96.4	4.87
Composite Scores					
Battery Comp.*	406.94	98.2			22.54
Total Ability	94.06	95.5			10.75
Basic Skills	162.89	98.2	157.80	97.7	12.47
Interests					
Music	5.39		5.72		2.34
Art	4.83		4.44		2.61
Mathematics	7.67		6.50		1.67
Science	8.39		7.78		0.68
Social Science	7.65		6.56		1.45
English	7.06		6.17		1.81
Foreign Language	5.83		4.78		2.46
Vocational	4.17		4.56		2.43

TABLE XXVIII

tandard Deviations of Achievement, Ability,
t Scores in the Firestone PPSP Group
(n = 19)

Means					
1974		1975		Standard Deviation	
Raw Score	% ile	Raw Score	% ile	1974	1975
47.33	93.3			9.08	
47.33	93.3			9.08	
47.72	95.5			6.02	
63.61	99.4	60.40	98.2	3.68	10.01
53.06	93.3	50.35	88.5	6.66	12.86
46.22	97.7	47.05	97.7	6.85	7.22
52.72	98.2	51.55	96.4	5.22	14.94
53.00	96.4	49.65	91.9	5.80	14.18
44.28	91.9	42.68	96.4	4.87	12.64
406.94	98.2			22.54	
94.06	95.5			10.75	
162.89	98.2	157.80	97.7	12.47	25.76
5.39		5.72		2.34	2.16
4.83		4.44		2.61	2.50
7.67		6.50		1.67	2.14
8.39		7.78		0.68	1.87
7.65		6.56		1.45	2.11
7.06		6.17		1.81	2.54
5.83		4.78		2.[illegible]6	2.35
4.17		4.56		2.43	2.03

TABLE XXVIII

Means and Standard Deviations of Achievement, Ability
and Interest Scores in the Firestone PPSP Group

	Means				
	1974		1975		
	Raw Score	% ile	Raw Score	% ile	Standa 1974
CMI (1974 n = 19) (1975 n = 19)					
Attitude	40.63	86.0	40.84	81.0	2.18
Knowing Yourself	15.74	69.0	16.42	66.0	1.65
Knowing About Jobs	18.26	84.0	18.16	78.0	1.55
Choosing a Job	13.58	50.0	15.05	42.0	6.04
Looking Ahead	13.74	58.0	16.21	69.0	6.11
What Should They Do	10.89	60.0	12.63	76.0	5.06

*Indicates subtests that Firestone students did not take in 1975.

TABLE XXVIII

d Standard Deviations of Achievement, Ability
terest Scores in the Firestone PPSP Group

Means					
1974		1975		Standard Deviation	
Raw Score	% ile	Raw Score	% ile	1974	1975
40.63	86.0	40.84	81.0	2.18	3.95
15.74	69.0	16.42	66.0	1.65	1.70
18.26	84.0	18.16	78.0	1.55	2.72
13.58	50.0	15.05	42.0	6.04	4.48
13.74	58.0	16.21	69.0	6.11	3.97
10.89	60.0	12.63	76.0	5.06	3.86

hat Firestone students did not take in 1975.

TABLE XXIX

Means and Standard Deviations of Achievement, Ability and Interest Scores in the Akron Control Group (n = 9)

	Means		Stan
	% ile	Raw Score	
STS			
Abilities*			
Non-verbal*			
Verbal			
Achievement			
Reading	88.5	50.11	
English	94.5	55.78	
Math	93.3	41.56	
Science	97.7	54.11	
The U.S.A.	90.3	49.22	
Solving Everyday Problems	94.5	46.56	
Composite Scores			
Battery Comp.*			
Total Ability			
Basic Skills	94.5	147.44	
Interests			
Music		6.56	
Art		5.89	
Mathematics		6.00	
Science		7.33	
Social Science		7.00	
English		6.78	
Foreign Language		6.00	
Vocational		5.22	

TABLE XXIX

tandard Deviations of Achievement, Ability
est Scores in the Akron Control Group
(n = 9)

	Means		Standard Deviation
	% ile	Raw Score	
	88.5	50.11	6.19
	94.5	55.78	4.69
	93.3	41.56	8.76
	97.7	54.11	4.15
	90.3	49.22	6.53
blems	94.5	46.56	2.59
	94.5	147.44	11.86
		6.56	1.77
		5.89	2.51
		6.00	2.54
		7.33	1.83
		7.00	2.16
		6.78	1.23
		6.00	2.05
		5.22	2.04

TABLE XXIX

Means and Standard Deviations of Achievement, Ability and Interest Scores in the Akron Control Group

	Means		Star
	% ile	Raw Score	
CMI			
Attitude	71.00	39.89	
Knowing Yourself	79.00	16.89	
Knowing About Jobs	91.00	18.89	
Choosing a Job	64.00	16.22	
Looking Ahead	80,00	17.11	
What Should They Do	84.00	14.44	

*Neither the Firestone PPSP students nor the Akron control students t
sections of the STS in 1975.

TABLE XXIX

dard Deviations of Achievement, Ability
Scores in the Akron Control Group

Means		Standard Deviation
% ile	Raw Score	
71.00	39.89	5.24
79.00	16.89	1.37
91.00	18.89	1.29
64.00	16.22	2.57
80,00	17.11	0.99
84.00	14.44	2.11

students nor the Akron control students took the ability
.

Students in the PPSP program at Firestone High School were asked to indicate positive aspects of their program and ways in which the program could have been made better so that future implementation of the program would benefit from their experiences. Students were interviewed in two groups; one group met in Columbus with an evaluator at the same time the remainder of the group met at Firestone High School with another evaluator. The questionnaire (see Appendix Y) was broken into several rather precise areas; students were requested to write responses to each of these areas. The outline below delineates the major categories and summarizes the comments which are given verbatim in Appendix Y .

Selection of Students: academic ability. The most frequently appearing comment was that students should be at least above average in academic ability. Some students, however, indicated that an average ability coupled with a willingness to work should be satisfactory.

Selection of Students: vocational interest. The majority of students seemed to believe that the general field of health would lead to satisfactory results next year and that a more narrow focus was not necessary.

What was right or wrong with your PPSP'S method of selection? This question elicited a diverse set of responses from which it appears that the students were not at all clear about the method of selection that had been used. Some students indicated that selection on just cumulative grade point average was insufficient while other students indicated that they believed that standards had been lowered on grade point averages to include some incapable students. Other students thought that private interviews were a good method of selection; some said that only grade point average had been examined.

How would you locate and inform potential students? Several students indicated that a speaker sent to science class within a school would be a good method. Some students indicated that descriptive pamphlets should be passed out.

Selection of teachers: academic background. Most of the students indicated that the teachers would need a good background in math and science.

Selection of teachers: vocational background. Most of the students indicated that it would be helpful if the teacher had health-related work experience, and some also indicated a necessity for previous teaching experience.

What was right or wrong with your PPSP'S method of teacher selection? Although a few students indicated that they would have liked their teachers to have related their studies more with the health professions, the most frequently appearing criticism was that some of the teachers were not as good in teaching ability as the students had hoped. Specifically, the students felt that some of their teachers were not enthusiastic about the program and were not able to communicate well.

Selection of materials and texts. The students indicated that in general they thought the material was helpful. One notable and often mentioned exception was a programmable calculator which the students claimed was useless and a waste of money.

Organization of a PPSP: transportation. Most of the students indicated no difficulty, and also indicated that their van was a tremendous help.

Organization of a PPSP: class scheduling. Most of the students appeared to be satisfied with the class scheduling.

Choice of field experiences. Students indicated that the most helpful field trips were those in which they went individually and in small groups. In addition, they indicated that a diverse set of field trips was preferable to visiting several similar institutions.

What was right or wrong with your PPSP'S organization? There was a great diversity of comments with no apparent common thread; however, it was mentioned a few times that the field experience portion of the program could have been more organized.

Coordination between the PPSP and the home school; extracurricular activities guidance and information; what was right or wrong with the coordination between your PPSP and your home school? Most of the students indicated that they saw no problems at all in any of these areas. It is important to note, however, that most of these students had been students at Firestone before the operation of the program.

Academic program: integration with field experiences. Judging from the responses of most of the students, field experiences were not greatly integrated with the school portion of the program.

Integration of academic subjects toward occupational choice Basically it appeared that there was little integration; however, several questioned whether this was feasible. One student said, "This is a utopian idea--on the high school level you are dealing in generalities and integrating medicine with science is next to impossible on this level."

How does the amount and level of learning you derived from the PPSP compare with what you anticipated? Most of the students apparently believed that there was a match between the education they expected and that which they received.

With what you would have expected at your home school? Most of the students indicated that the education they received was equal to or superior to that which they would have received in a standard curriculum except in the area of mathematics.

Concept of PPSP. From the responses, it appeared that the most vital factor for these students entering the program was the promise of field experiences. It was this very factor, field experiences, with which the students felt there should be more integration. Most of the students seemed to feel that this program should be run at a school with a good "academic record", probably so that it would maximize their chances of entering a professional school. Most of the students appeared to be very interested in the medical professions when they entered the program; consequently, the chance to learn more related content matter and to explore aspects of the area were the most appealing factors for entering.

The second questionnaire elicited comments which reinforced the general direction of the previous comments. The students saw the field trips and Biology class as being the most positive aspect of the program. These students saw the field experience portion of the program as most essential for program success (see Table XI). However, they appeared to want even better field experiences and also wanted a "more serious atmosphere" for the program. The weakest part of the program was seen as being the mathematics portion. The students stressed the necessity of having good teachers who were willing to work hard for them and the program.

FIRESTONE CAREER TEST

This Career Test was designed to measure the achievement of the following career related Firestone PPSP objectives: (a) Students will be able, through exposure to a wide variety of health professions, to make a realistic career choice, (b) Students will be able to identify the amount and type of training appropriate to the occupation of their choice, (c) Students will be able to specify institutions offering the required training, and (d) Students will have gained an increased self-knowledge in relation to career choice. Appendix Y is a copy of the Firestone Career Test and of the students' answers to open-ended questions. The Career Test is composed predominantly of open-ended items because of the diversity of interests and experiences within the program.

Firestone PPSP students reported meeting for at least one hour with an average of eleven different kinds of health professionals. The health professionals listed ranged from 21 to 7 in number, and from orderlies to orthopedic surgeons in kind. Most students indicated that they had spent ten or more hours with only one type of health professional, presumably a person working in the student's field of interest.

Only four of the thirteen Firestone PPSP students completing the Career Test reported that they had chosen a particular health occupation at the beginning of the program. Six of the students had only thought they might be interested in a health career. The remaining three had a definite interest but had picked no particular career at the start of the program. Four of those who only thought they might be interested had chosen a particular career by the time of the test. All of the students with a particular choice at the beginning of the program had retained it. The remainder of the students were still interested in the field of health, only one indicating that he was considering other career areas.

Five of the students felt that their interest in the health field had increased. The remaining eight felt that their interest in health had remained the same. Whether the level of their interest changed or not, six of the students reported a change in their occupational choice, either from one occupation to another, or from no selection to an interest in a particular occupation.

All but one of the students were able to identify the proper length and sequence of training for their chosen occupation. The remaining student omitted internship and residency from training to be a physician. Most of the students were able to identify at least two institutions which offered the training they desired. The students did a fair job of meeting the two objectives represented by this section of the test.

From student comments, it is evident that field experiences have had a decided effect on student career choice. The Firestone PPSP students seemed to have learned more about the educational and ability requirements of the different occupations than about how their own personalities and emotional needs match with the emotional components of different occupations. The students also seem to have gained a knowledge of the actual duties and activities associated with health professions.

The students seem to feel that the anatomy and physiology aspects of biology class had an impact on their career selection but not as great an impact as the field trips. Several students commented on the difficulty, despite the efforts of the instructor, of integrating class work with health careers.

Overall, the Firestone PPSP appears to have done a good job of achieving its career related objectives.

Firestone Physics

Textbook chapters covered by the Physics students at Firestone High School were identified by the teacher at a meeting with the examiner. In addition, the teacher supplied tests which had been prepared by the textbook author and explained that similar items would be appropriate in testing the objectives of his course.

Items were prepared using the textbook and the author's test as a guide. Emphasis in testing was given to the topics to which the greatest amount of class time was given. Topics covered were:

1. General skills and knowledge
2. Mechanics
3. Heat, gas laws, buoyancy
4. Wave phenomena (sound and light)
5. Electrical phenomena

Items written by the examiner were reviewed and edited by the teacher.

Results

Test Totals:

Number of Questions Analyzed	59
Mean	34.75
Median	33.50
Mean Item Easiness (proportion of items answered correctly)	0.589
Percentage of students answering:	
80-100% of items correctly	9.09
60-79% of items correctly	36.36
50-59% of items correctly	27.27
40-49% of items correctly	27.27

General Skills (Items 1-4)	
Number of Questions	4
Mean Item Easiness	.75

Mechanics (Items 5-15)	
Number of Questions	11
Mean Item Easiness	.555

Heat, Gas Laws, Buoyancy (Items 16-24)	
Number of Questions	9
Mean Item Easiness	.715
Wave Phenomena (Items 25-39)	
Number of Questions	14*
Mean Item Easiness	.500
Electrical Phenomena (Items 40-60)	
Number of Questions	21
Mean Item Easiness	.490

*Item 32 omitted from analysis

Discussion

Most of the physics test items required students to operate above the knowledge level. To answer questions they were required to interpret the item, select the appropriate principle or formula, and apply the principle or formula to the problem presented by the questions. In tests of this type, each item involves a sequence of steps and several opportunities for student error. In the opinion of the examiner, students who correctly answer 70% or more of the items on this type of test have done very well.

The actual test results show that three students of the eleven students answered 70% or more of the items correctly. Eight of the eleven students answered better than half of the items correctly. The examiner feels that these overall results indicate that the Firestone PPSP students have a good knowledge of basic physics roughly comparable to that of students in conventional science programs.

A section-by-section examination of the test results indicates that the students were most successful in the general skills and heat and gas laws sections. The most difficult section was the one dealing with electrical phenomena. These results are not unexpected since electrical phenomena are not usually given as much attention as general skills, heat and gas laws in pre-physics science courses. Many concepts dealing with direct current and almost all of the concepts dealing with alternating current are met for the first time in a student's first physics course.

FIRESTONE--LIFE SCIENCE

A list of topics covered by the Firestone PPSP life science test and a number of broad objectives for each topic were provided by the instructor. Telephone conversations between the instructor and the examiner served as a guide to the relative emphasis to be placed on each topic or goal. The instructor also provided copies of tests he had given for use as examples of the type of questions his students should be able to answer.

The topics included in the test were:

1. Physiology
2. Parasitology
3. Microbiology
4. Dissection-based anatomy
5. Statistics
6. Scientific Proposals, Papers, and Abstracts
7. Experimental Design

One open-ended item supplemented the multiple choice questions covering the topic of statistics and the topic of experimental design. The items prepared by the examiner were discussed with the teacher who made suggestions bringing the items more closely in line with his objectives.

Results

Test Totals:	
Number of Objective Questions Analyzed	70
Mean	43.786
Median	44.500
Mean Item Easiness (proportion of items answered correctly)	0.626
Percentage of students answering:	
80-100% of items correctly	
60-79% of items correctly	57
50-59% of items correctly	21
40-49% of items correctly	21
Section Results:	
Physiology (Items 1-16)	
Number of questions	16
Mean item ieasiness	.57
Parasitology (Items 17-26)	
Number of questions	9
Mean Item Easiness	.71

Microbiology (Items 27-40)	
Number of Questions	14
Mean Item Easiness	.71
Dissection-based Anatomy (Items 41-53)	
Number of Questions	13
Mean Item Easiness	.70
Statistics (Items 54-61)	
Number of Questions	8
Mean Item Easiness	.70
Experimental Design (Items 67-71)	
Number of Questions	5
Mean Item Easiness	.69

*Item 19 was omitted from the analysis

Open-Ended Items:

Item 73--Hypothesis Formation

Content of Answer	Number of Students
Made statement of no difference between two quantities or said that the difference between two quantities was due to chance.	2
Made statement mentioning differences being due to chance alone but didn't identify the quantities being compared	2
Stated that 1/4 of all eggs laid by ospreys will have defective shells. (This is a directional hypothesis rather than a null hypothesis)	6
Other	2

Item 74--Selecting the appropriate Statistical Test

Test Suggested	Number of Students
Chi-square	11
t-test	1

Eleven of the twelve students recognized that chi-square is the appropriate test to use in the situation described.

Discussion of Results

The Firestone life science test was designed to evaluate primarily non-laboratory aspects of the program. Although development of laboratory skills was an important part of the course, only a few techniques readily lent themselves to paper and pencil testing. Designing a laboratory practical was beyond the scope of the present evaluation.

The multiple choice items included on the test required the student to exhibit his knowledge of specific facts and terminology, important generalizations, and frequently used procedures. A few items required him to apply his knowledge in new situations, but knowledge level questions predominated.

In the opinion of the examiner, the students did well to correctly answer 62.6% of the test items. The students were more successful in answering questions in the parasitology, anatomy, statistics and experimental design sections than in the physiology, microbiology, and scientific literature sections. The reasons for these differences are not apparent. The most likely explanation is that the items in the former sections more closely reflected the course goals.

Papers from only 12 of the 14 students were available for analysis of responses to items 73 and 74. The answers to these show that most students (8/12) have learned to state hypotheses. However, only two students were able to distinguish between a null hypothesis and a directional hypothesis. A very high proportion (11/12) of the students were able to name an appropriate statistical test for use in a given situation.

Overall, the examiner feels that with 11 students correctly answering at least 50% of the items, course objectives have been satisfactorily attained.

SECTION III

CONCLUSIONS AND RECOMMENDATIONS

The PPSP appears to have resulted in general achievement comparable to a traditional high school curriculum, in addition to giving most of the students very valuable field experiences and specialized knowledge about their career areas. Consequently, the program should be considered successful from an educational perspective.

Some of the locations of the program, however, proved to be more successful than others in terms of the implementation of the concept of the PPSP. For example, Penta and Scarlet Oaks were two locations in which students did spend a large block of time in their major area of concentration. Penta had a curriculum which the teachers followed; Scarlet Oaks did not. However, Scarlet Oaks appears to have had more valuable field experiences, and the entire set of materials provided for the students appears to have been relevant to their career choice. Also activities were well integrated with academic content.

Therefore, it appears that the most successful exemplification of the PPSP concept was presented by the Scarlet Oaks Health program. This does not mean, however, that the Scarlet Oaks program was perfect and could not have been improved. For example, it appears that the students in the program did not know as much about general United States' history as students in a traditional program. Since history is an important content area in high school curriculums, it appears that special efforts should be made to structure a PPSP in such a way that history is included. In addition, at Scarlet Oaks there was a tendency (nonsignificant) for the students to do less well in math than students in a traditional curriculum. In the Scarlet Oaks PPSP, programmed material was used to teach mathematics. Because mathematics is an integral part of a health program, an alternative method of teaching mathematics should be used.

GENERAL RECOMMENDATIONS

1. It is recommended that future implementation of the program involve the use of some sort of curriculum or at least a general plan. It appears that some of the teachers were frustrated at the beginning of the program when they did not have a procedural guide or introduction to activities designed to meet program objectives.

2. It is also recommended that interested, talented teachers who are at least familiar with the general career area be recruited. It is highly improbable that one teacher will be equally

talented in all subject areas, but a team of teachers should be able to provide the resources. Although teachers may regard meetings with a supervisor as a waste of time, meetings for information-giving and encouragement probably would be essential. All teachers should know what field experiences the students are participating in, and all the objectives of the other teachers. Also teachers should have feedback on their progress in meeting program objectives.

3. The program should be highly publicized so that more students attempt to enter the program. The selection procedure for a field such as health (as it was implemented) should probably limit entrance to those students who are average and above average in achievement and who are interested in the general career area. Interviewing should probably be included as part of the selection procedure.

4. If the program is not held at a comprehensive high school in which all of the students in the program would already be enrolled, transportation problems of the students should be alleviated. Equipment necessities for the program should be specified by the team of teachers before program begins.

5. In general, the key to this program, as with almost any educational program, was the teacher(s). Skill at teaching and knowledge of content are requisites; however, in this program the interest and dedication of all teachers involved are also requisites. Probably this program should also involve at least one person, preferably the field-experience coordinator, who, in addition to carefully organizing field trips that eventually would be tailored to individual student interest, would also function as a counselor. Hopefully, if the program is held at a location other than the student's high school, this coordinator-counselor could also smooth over any administrative difficulties that arise. Most of the students in this program appear to be committed to some health or social science career. However individualized guidance in some portions of the program appears to be essential, for the students were engaged in a "different" endeavor and anxieties arose. Some attempt at individual guidance is seen as being extremely important. A coordinator-counselor could provide this type of counseling.

RESEARCH RECOMMENDATIONS

The PPSP, as implemented, can be evaluated from two different perspectives, educational and experimental. The above conclusions are based on an educational perspective; those that follow are based on an experimental perspective.

It is when the implemented PPSP is considered as an attempt to evaluate the applicability of the PPSP concept to high school students, that it is found wanting. Because the evaluation contract was not awarded until too late for several important initial actions to be taken (i.e., the acquisition of premeasures and adequate controls, and clarification of the variance of organizational structures) the evaluation of the PPSP could not provide definitive information from which to make generalizations about what would make future PPSP's successful with different students or about the value of a PPSP compared to other high school programs.

The evaluation as it was actually carried out can probably best be characterized as a series of case studies in which the control and growth measures are necessarily imprecise. It appears to the evaluation team that the evaluation done was the best possible, given the lack of premeasures and the lack of a single curriculum or general organizational structure for all sites. Generalization of findings must therefore be tentative both because of the diversity of the programs and because of the lack of information about the nature of the students when they entered the program.

When a PPSP is reestablished, the following steps are recommended in order that a better experimental evaluation can be made: (a) measures of the applicants on relevant instruments be taken before the program begins, (b) randomly assign half of the applicants at any one site to a control group, accepting the remaining half into the PPSP at that site, and (c) establish and maintain a consistent organizational structure and curriculum at all implementation sites or have them vary in some clearly specified manner.

APPENDIX A

INSTRUMENT D

OBJECTIVES SURVEY

Name ______________________________

1. In a few words, describe the most important objective of the pre-postsecondary program, as you see it.

____

____

____

2. The second most important objective?

____

____

____

3. The third most important objective?

____

____

____

OBJECTIVES SURVEY
TEACHER RESPONSES

1. In a few words, describe the most important objective of the pre-postsecondary program, as you see it.

To encourage students to see the social sciences as part of the total society and world they operate in.

The student should acquire the necessary knowledge to enter college and pursue the profession of his choice.

To have each student make (or reject) an intelligent career decision.

To prepare motivated, specially selected students for entrance into a professional career in the health fields.

To give the students the best possible exposure to post secondary education while incorporating the necessary content material for their H.S. diplomas, in addition to whatever postsecondary material time will allow us to cover.

To experience a career area or areas in the health fields in such a way that he or she can make a realistic decision concerning the entry into preparation for that career.

In our case it would be to provide field experiences that relate to their field of interest for the purpose of stimulating and familiarizing them with their areas of concentration.

To organize and teach the appropriate discipline content structured around a career objective.

2. The second most important objective?

To encourage students to be more sensitive to human beings as individuals

Explore the various opportunities and areas of his desired profession.

To have that student prepared scholastically for his (her) career.

To give the students a solid background in the sciences at an advanced level with a coordination of physical and life sciences.

To make the students aware of their own capabilities and put them to use.

To develop ways to self understanding so that each student can compare his his own needs, feelings, and capabilities with those required of successful persons in his career choice.

To provide materials, i.e. data such as lectures, printed material, films, speakers, etc. for the purpose of enriching their field of interest.

2. The second most important objective?

To assist individual students in the process of refining and clarifying career goals

3. The third most important objective?

To utilize the activity centered concept (both in school and community) in developing a relevant educational program which relates theory and practice.

To communicate within the class on a human and meaningful manner for the purpose of getting along in the community and in life.

To show how the political system is responsible for influencing public policy in the medical field

To select the profession (specific) they wish to follow

To speed up the length of time necessary in reaching a career decision and to get the bugs out of this program now.

To prepare the students for the rigors of college study.

To have the students realize that language skills are real and essential to their successes in college and in the real world.

To have achieved the academic growth necessary for entry into and successful completion of the preparatory institution of his or her choice.

APPENDIX B

INSTRUMENT B
PRE-POSTSECONDARY WORKSHOP EVALUATION

February 13-14, 1975

1. How much did you learn about the purposes and types of class discussion?

_____ a great deal

_____ quite a bit

_____ a moderate amount

_____ a little

_____ nothing

2. To what extend did the workshop help you relate purposes and types of class discussion to your own goals as a teacher?

_____ a great deal

_____ quite a bit

_____ a moderate amount

_____ a little

_____ not at all

3. How much has your ability to relate higher level questioning strategies and thinking skills to your teaching program improved as a result of the workshop?

_____ a great deal

_____ quite a bit

_____ a moderate amount

_____ a little

_____ not at all

4. A and B are sample test questions. Please indicate which of the four options best describes the mental process involved in answering each question.

A. What were three major causes of the Civil War?

A. convergent production

B. divergent production

C. cognition

D. memory

B. What might the world be like today if Germany had won the war?

A. evaluation

B. convergent production

C. divergent production

D. cognition-memory

5. Below is a hypothetical discussion transcript. A, B, and C are alternative teacher responses to Amy's irrelevant comment. Which teacher response is probing?

Teacher: Should people always follow orders?

Amy: My brother doesn't even want to be in the Army.

A. Teacher: That's not what I want.

B. Teacher: If your brother was given an order that went against his values would he follow it?

C. Teacher: OK, what do some of you think about Lt. Calley?

6. How often do you expect to use what you have learned at the workshop?

____ very often

____ often

____ occasionally

____ very rarely

____ never

7. What do you consider the strongest aspect of the workshop?

the weakest?

8. Any comments, suggestions, etc?

1. Responses to: "How much did you learn about the Purpose and Types of Class Discussion?"

1	a great deal	0	a little
9	quite a bit	0	nothing
1	moderate amount		

2. Responses to: "To what extent did the workshop help you relate purposes and types of class discussion to your own goals as a teacher?"

0	a great deal	0	a little
9	quite a bit	0	nothing
2	moderate amount		

3. Responses to "How much has your ability to relate higher level questioning strategies and thinking skills to your teaching program improved as a result of the workshop?"

1	a great deal	1	a lot
4	quite a bit	0	nothing
3	moderate amount	1	?
		1	no response

A and B are sample test questions. Please indicate which of the four options best describes the mental process involved in answering each question.

Identification of the Question "What were three major causes of the Civil War?

4a.

3	convergent production	1	memory
1	divergent production	1	no response
5	cognition		

Identification of the question "What might the world be like today if Germany had won the war?

4b.

3	evaluation	0	cognition-memory
1	convergent production	1	no response
6	divergent production		

5. Response to "A, B, and C are alternative teacher responses to Amy's irrelevant comment. Which teacher response is probing?"

Teacher: Should people always follow orders?
Amy: My brother doesn't even want to be in the Army.

0 Teacher: That's not what I want
10 Teacher: If your brother was given an order that went against his values would he follow it?
1 Teacher: OK, what do some of you think about Lt. Calley?

6. Response to "How often do you expect to use what you have learned at the workshop?"

3 very often
6 often
2 occasionally
0 very rarely
0 never

7. What do you consider the strongest aspect of the workshop?

Ashner Gallagher

Distinguishing different types and questions, realizing that the four types are not always perfectly defined (some questions contain, for example, a grey area between convergent and divergent)

First experience with the Flanders

Micro-lesson and Gallagher Ashner

The interchange of ideas

Actual experience of trying out questions upon students and subsequent viewing of the tape.

Development of skills in teaching--and a method for evaluation of present methods and personal teaching characteristics

The total information received--from all sources--also having to perform and knowing it in advance probably made one more attentive.

The interchange of ideas among all concerned--ability to interact.

Make instructor aware of questioning (thinking about it) planning

Stimulation of my thinking about the teaching process and the opprotunity for discussion with other thoughtful and skilled teachers.

the weakest?

Dinner at Quality Inn

Failure to place greater emphasis on how the four types of questions relate to different types of material (highly subjective vs. high objective).

Not being able to attend all sessions

the weakest?

Slide show

Shortage of time

Me

Time

I personally do not fully understand evaluating questions--but my level of questioning is higher

My own weariness

8. Any comments, suggestions, etc.

Excellent job--both Arch and Frank were very effective leaders.

An excellent experience for me.

None

I like keying in on one element of the teaching strategy

Possibly use "live" (tape of film) examples

APPENDIX C

INSTRUMENT L

PRE-POSTSECONDARY PROGRAM ADMINISTRATION QUESTIONNAIRE

INTRODUCTION

The following questionnaire is designed to provide basic data relative to program administration at the local school level. This data will serve as a point of departure for faculty in-put concerning the program administration. The perceptions of the faculty represent an important element in a realistic assessment of the administration of the educational program.

Preliminary Information

1. Highest educational level to date

____ High school graduation
2 Bacalureate degree
2 Masters degree
5 Beyond masters degree

2. Your age to nearest birthday

1 25-30 years
4 30-35 years
____ 35-40 years
2 40-45 years
____ 45-50 years
1 50-55 years
1 55-60 years
____ over 60 years

3. Sex: 1 Female   8 Male

4. Years of public school teaching experience you possess (including 1974-75)

3 less than 5
3 5-10 years
1 10-15 years
1 15-20 years
____ 20-25 years
1 over 25 years

5. Years of non-educational occupational experience you possess to date

5 less than 5
1 5-10 years
1 10-15 years
2 15-20 years
____ 20-25 years
____ over 25 years

6. Please identify the type of program in which you currently teach

1 Engineering
1 Social Science
7 Health

7. Indicate the type of educational organization in which your program is located.

2 J.V.S. 5 Technical College 2 City System

DIRECTIONS

Please read each of the following items carefully and responds according to your perception of your situation. Place an X in front of the option which represents your best assessment of each administrative factor. The term administrator as it relates to this questionnaire refers to your immediate superior in the administrative structure.

1. Which of the following represents the line and staff organizational structure in your school:

1 A. is in writing, but does not exist in practice
3 B. exists, but is not in writing
1 C. is in writing and does exist but is ineffecitve
2 D. is in writing, does exist, and is moderatly effective
___ is in writing, and has been effectively emplemented
2 Not Known

2. I think the professional assignment of faculty in this program in terms of training and experience is :

___ A. faculty not assigned on the basis of training and experience
___ B. faculty sometimes assigned based on experience and training
2 C. faculty generally assigned on basis of training and experience
4 D. faculty almost always assigned on the basis of experience and training
3 E. faculty always assigned on the basis of experience and training.

3. In my school, job descriptions have been utilized in making personnel assignments as follows:

5 A. only oral job descriptions have been used
___ B. job descriptions are in writing, but unclear
___ C. job descriptions in writing, and clear
1 D. job descriptions in writing, clear, and used moderately
2 E. job descriptions in writing, clear, and implemented effectively

1 Not Known

4. To what degree have the faculty had an opportunity for input relative to the development and administration of the program budget.

4 A. budget prepared by administrators with no faculty involvement.
1 B. budget prepared by administrators with some faculty involvement.
1 C. budget prepared by administrators and faculty equally
___ D. budget prepared and administered by administrators with no faculty involvment.
___ E. budget prepared and administered by program administrators with some faculty involvement.
1 F. budget prepared and administered by program administrators and faculty equally.
2 Not Known

5. The funds allocated for the instructional phase of my program are:

2 A. completely inadequate
3 B. somewhat inadequate
3 C. adequate to meet program needs
___ D. more than adquate
1 E. abundant

6. The amount of time that's alloted to the teachers in the program in my school for lab and classroom instruction is:

4 A. really more than is needed
5 B. about right in length
___ C. not enough to get the job done adequately

7. In coordinating instructional activities within the program, I feel that my supervisor gives:

4 A. ample time to the program and is very effective
5 B. has little time to give to the program, but is effective in the amount of time he does give.
___ C. gives ample time to the program but, is in general is rather ineffective in coordinating activities
___ D. does not give ample time to the program and the coordinating appears to be effective.

9. This program is somewhat different from the traditional academic college prep program. To what extent does your immediate supervisor provide leadership in supporting those changes.

5 A. He offers me suggestions and offers support to help me
4 B. He offers few suggestions but gives me support in the activities I am engaging in.

___ C. he suggests many things I am doing, but actually gives me little support
___ D. he seldom suggests changes and I feel that support is lacking

10. Does the administrator of this program ask you for information that would help in the decision making about the program.

5 A. advice is asked and I think used
1 B. advice is asked, but I feel that my opinions are seldom listened to.
3 C. my advice is seldom asked for but when it is; it is used
___ D. my advice is seldom asked for and I feel and never used even when it is given.

11. Do you feel that the decisions made in the administration of this program are.

___ A. totally inconsistent with the goals of the program
1 B. somewhat inconsistent with the goals of the program
1 C. somewhat consistent with the goals of the program
7 D. very consistent with the goals of the program

12. The amount of communication between me and my immediate supervisor is as follows.

9 A. as often as is necessary
___ B. really too much; there is a lot of wasted time
___ C. to little; I often feel that I do not know what is going on.

13. When I receive communication from my immediate supervisor I

6 A. trust the information I receive almost always
3 B. I usually trust the information I receive
___ C. I seldom trust this information

14. In my communication with my immediate supervisor,

9 A. I am confident he will use the material wisely
___ B. I select that I say because I am unsure what he will do with the information
___ C. I seldom communicate with my supervisor because he may use my information.

15. How comfortable to you feel in talking with your supervisor

9 A. very comfortable
___ B. somewhat comfortable
___ C. somewhat uncomfortable
___ D. very uncomfortable

16. This year are you happy with the students that were selected for the program

3 A. yes, I would have made very few changes
5 B. generally yes, but I would have made quite a few changes
1 C. generally no , I would have made a considerable number of changes

17. Did you feel that the selection of the students this year was in keeping with the general philosophy of the program.

1 A. definitely yes
5 B. in most cases
2 C. there was a descrepancy between the philosophy and the selection procedure.
1 Not Known

18. How would you describe the students in the program with respect to their scholastic ability

7 A. upper 20 percent
1 B. upper 20 to 40 percent
1 C. middle 40 to 60 percent
___ D. 60 to 80 percent
___ E. the lowest 20 percent

19. If you were to judge the students in our program with respect to realistic career choice for a profession as compared with high school students in general these students would be in

4 A. much better than students in general
4 B. somewhat better than students in general
1 C. about the same as students in general
___ D. somewhat worse than students in general

20. The advisory committee for my program
5 A. has been established
3 B. has not been established

1 Not Known

21. I feel that my advisory committee is

1 A. consulted when necessary
1 B. probably not consulted as often as it should be
6 C. not consulted enough
1 D. consulted with those I think are on the committee when necessary

22. In general, the facilities that are used for students in in this program are:

8 A. adequate
1 B. somewhat adequate
C. somewhat inadequate
D. inadequate

23. I would describe the availability of instructional materials and supplies for this program as

5 A. readily available
3 B. usually available
C. rarely available
1 D. never available

24. When students in your program participate in a field experience to what extent did your administrator facilitate this activity

2 A. a great deal
3 B. quite a bit
3 C. as much as was necessary
D. he could have helped more
1 Not Known

25. Do you feel that the local administrators above your immediate supervisor have shown support for this program

7 A. yes, definitely
1 B. yes, in most circumstances
1 C. I really can't judge from what I have seen
D. I feel that the administration is not supporting the program enough

26, Has your local administrator given the program adequate "coverage" in terms of providing an opportunity for the program to be presented to the many publics (e.g., via newspapers, radio, TV, provide an opportunity for people in the program to speak)

A. yes, often
4 B. yes, sometimes
1 C. yes, but seldom
3 D. rarely, or never
1 Not Known

27. Has your administrator provided you with sufficient time for the work that is required in this program (instructional preparation, instruction, planning field experiences, and field experiences:

9 A. yes,
___ B. no,
___ C. Comments

APPENDIX D

A

LOCAL ADMINISTRATION
OF THE
PRE-POSTSECONDARY EDUCATION PROGRAM

NAME ____

LOCATION ____

PROGRAM:

_____ Health
_____ Engineering
_____ Social Science

1. A. List the ways in which your local administration assisted you in carrying out your responsibilities as a teacher in the Pre-Postsecondary program. Please be specific. Use the back of this paper, if necessary.

________________________________ __________
________________________________ __________
________________________________ __________
________________________________ __________
________________________________ __________
________________________________ __________

B. For the above list, give one of the following numerical designations indicating your evaluation of this help.

1 - Very helpful
2 - Somewhat helpful
3 - Not helpful
4 - A hindrance

2. A. List the ways in which the State Department of Vocational Education assisted you in carrying out your responsibilities as a teacher in the Pre-Postsecondary Program. Please be specific. Use the back of this paper, if necessary.

________________________________ __________
________________________________ __________

2. A. Continued

____ __________

____ __________

____ __________

B. For the above list, give one of the following numerical designations indicating your evaluation of this help.

1 - Very helpful
2 - Somewhat helpful
3 - Not helpful
4 - A hindrance

Make any other comments, suggestions, or criticisms pertaining to the local or state administration of the Pre-Postsecondary Program.

____

____

____

____

____

____

INSTRUMENT A

LOCAL ADMINISTRATION OF THE PRE-POSTSECONDARY EDUCATION PROGRAM

1. A. List the ways in which your local administration assisted you in carrying out your responsibilities as a teacher in the Pre-Postsecondary program. Please be specific. Use the back of this paper, if necessary.

Numerical Rank	1 = Very helpful 2 = Somewhat helpful 3 = not helpful
1	Cooperation in field experiences
1	Light teaching loads other times in the day
1	Providing class coverage when necessary
1	Relaying messages
2	Moral support
2	Put through purchase orders promptly
2	Obtained additional teaching help (chemistry teacher)
2	Fought to keep English teacher when director of school attempted to remove him.
2	Gave me freedom to operate program at my own direction--drove me to many meetings
2	Helped to recruit students
2	Read me poetry when I was sad.
1	As good as one could expect. Help was given when asked. Cooperated in all ways
1	Provided a van
2	Provided a telephone after a year of requesting it
3	I worked independently from curriculum guide and after learning students' backgrounds & abilities I worked independently
1	Was allowed to work independently
1	Weekly staff meetings
1	Individual conferences
1	Provided materials requested and worked very well with director (prinicpal) of Live Oaks campus. Both helpful when I need help.

2 Was supportive of whatever we felt should be done in the classroom--relied on our judgment -- this is good

1 Didn't bug us

2. A. List the ways in which the State Department of Vocational Education assited you in carrying out your responsibilities as a teacher in the Pre-Postsecondary Program. Please be specific. Use the back of this paper, if necessary.

1 Providing materials (or money for materials)

1 Providing monies for inservice training

2 Listening periodically to the progress report of the program

2 Supplied money for program

2 Supplied speakers for meetings at request of teacher-educators

_ Do not know of any other way

2 Adequate help when asked

1 Providing the money

2 Guidance in curriculum development

1 Not at all

_ None

1 Primary helpful in writing objectives

_ None

1 Interaction analysis sessions

Make any other comments, suggestions, or criticisms pertaining to the local or state administration of the Pre-Postsecondary Program.

No response

I really do not know what I should have expected. More planning perhaps?

Somehow they must "break the ice" between the college and the program

We met weekly as a group with the local administrator which gave us a chance to interchange thoughts about students and in some cases give the program an interdisciplinary nature e.g., physics/math; bio sci/social sci.

Make any other comments, suggestions, or criticisms, etc.

The local administration was extremely cooperative and made my two years the most pleasant of my teaching career.

I did not feel that the state department was much concerned with individual teachers.

They backed me and did all possible to have program succeed. They stuck with the program.

Liked being able to do what I thought best in my classroom.

Seems a bit top heavy

APPENDIX E

INSTRUMENT B

Pre-Postsecondary Laboratory Evaluation

NAME ____________________

LOCATION ____________________

Which program:

_______ Health _______ Social Science

LABORATORY

How adequate are your laboratory facilities for the Pre-Postsecondary Program?

4	Had all the equipment needed
2	Had the equipment necessary 75% of the time
1	Had the equipment necessary 50% of the time
	Had the equipment necessary 25% of the time
1	Completely inadequate
1	Blank

What equipment could you use that you do not have? Explain the need for this equipment.

What equipment do you have that is not used?

B (continued)

Please include a complete inventory of equipment used up to this time and any equipment you have definite plans to use before the end of the school year.

____

____

____

____

Please give any further suggestions, comments, or criticisms you have about the laboratory facilities.

____

____

____

____

INSTRUMENT B TEACHER COMMENTS

PRE-POSTSECONDARY LABORATORY EVALUATION

What equipment could you use that you do not have? Explain the need for this equipment.

More microscopes, a microtome for histological studies, a working kymograph.

Texts, but I do not know what texts I would have selected

None

English textbooks--we didn't have any

Audio visual materials--we didn't have any

Needed money for books--could have used three texts: American Gov't, State and local Government, and Political Idiologies

Finally had most needed equipment--but due to late implementation of program--equipment arrived a year late in many cases. Conducted most of first years activity with "made do" materials

None

Nothing

None

What equipment do you have that is not used?

None! (In biology)

None

None

None

Used films & filmstrips from the college - crossed out the question

Not any that is not used at all

This year we had only two engineering students so much of the equipment we used last year was not used this year. Equipment least used dealt with strengths of materials.

None

None

Please include a complete inventory of equipment used up to this time and any equipment you have definite plans to use before the end of the school year.

Microscopes, incubator, (bacteriological), autoclave, hand microtome, calculators, centrifuge, balances

Closed circuit TV, projectors, film strips, audio tapes, very little printed material

The basic equipment needs for field experiences are: a vehicle for transportation to group experiences, a telephone, and secretarial help

Blank

Blank

Chemistry and physiology equipment unable to list contents--as usual equipment should be included

Biology laboratory equipment

Physics laboratory equipment

The usual COLLEGE biology, chemistry, and physics lab equipment. Most of it was new, so that is was easy to use.

Blackboard, chalk, overhead, screen, projector, films, computer

Please give any further suggestions, comments, or criticisms you have about the laboratory facilities.

Equipment-wise program was excellent, but in the physical sciences, a great deal of money was spent on equipment which was never used.

Actual lab was a class room. I would prefer a more private lab area. (too open for my purpose)

blank

blank

blank

Should have a well supplied science lab (full chem-physics lab)

Excellent facilities this year

A good high school laboratory set-up should be adequate. The main thing would be to have individual equipment so that the students could personally work with it.

None

APPENDIX F

INSTRUMENT C

Pre-Postsecondary Advisory Committee Evaluation

NAME ____

LOCATION ____

Program:

_______ Health   _______ Social Science

List the ways in which you were helped by the advisory committee. Please be as specific as possible.

______________________________________ __________

______________________________________ __________

______________________________________ __________

______________________________________ __________

______________________________________ __________

Beside each of the ways you were assisted by the advisory committee, give one of the numerical designations indicating your evaluation of the adequateness of this help.

1 - Very helpful
2 - Helpful
3 - Not very helpful

How much personal contact did you have with the advisory committee or its members?

_____ Once a week
_____ Once a month
_____ Less than once a month
_____ None

How was the advisory committee selected?

____

____

____

____

What improvements could have been made in the selection of the advisory committee and in the type of person selected?

Give any comments, suggestions, or criticisms you have about the advisory committee's selection and function.

Please list the names of your advisory committee and their areas of professional responsibility

INSTRUMENT C TEACHER COMMENTS

PRE-POSTSECONDARY ADVISORY COMMITTEE EVALUATION

List the ways in which you were helped by the advisory committee. Please be as specific as possible.

I am not aware of any advisory committee!

Placement of students into post-secondary programs.

Placement of students in field experiences

Aid in arranging field trips

Aid in obtaining information on health careers

Aid in reaching professionals (contacts with others)

Have one that advises and doesn't try to make low level policy decisions

None this year

Might be helpful to have people working in the social sciences to give students an idea of possible careers

None

No help given

With people selection committee could open many doors and provide professional background

The advising committee helped with original planning. The only other contact I had was with one member in setting up a specific field experience

How was the advisory committee selected?

?

I contacted health professionals that I thought would be helpful in implementing program

Politically

By the collective wisdom of our local administration and teaching staff

Don't know

Got me

How advisory committee selected?

Unknown to me

I would want last say as to who was on committee

I have no idea

Give any comments, suggestions, or criticisms you have about the advisory committee's selection and function.

Blank

Only as needed to aid in specific areas to have a group to call together just "to say you have a group" is a useless expenditure of time.

Blank

Last year the advisory council was indeed helpful. This year they did not function

N/A

?

It should be made up of people interested enough to spend some time visiting the classes and OFFERING their services to help the students on an individual basis.

N/A if there was a committee I did not know of this committee

Blank

Please list the names of your advisory committee and their areas of professional responsiblity.

?

Do not know if they really are members--but I used:
- Physician
- Nurse (teacher educator)
- Admission director (school of Nursing and University)
- Vet. Med. specialist
- Zoologist specialist
- Health career director

Blank

Names I don't have. They were from the following professions:
- Doctors
- Veteranarians
- Engineers (Elect, Mech, Civil, Architectural)
- Mathematics

Names of Advisory Council

N/A

? In area of math an advising committee is irrelevant

Not known to me

N/A

Dr. David Curtice - general surgeon
- dentist
- health planning association of Northern Ohio

APPENDIX G

INSTRUMENT F

Teacher Education Evaluation

In general, rate the teacher educator's visits.

________ Very helpful ____________________________________
________ Adequate ____________________________________
________ Some help ____________________________________
________ Very little help ____________________________________

In general, rate the teacher education seminars.

________ Very helpful ____________________________________

________ Adequate ____________________________________

________ Some help ____________________________________

________ Very little help ____________________________________

Rate the teacher education visits and seminars for their assistance to you in each of the following areas:

Questioning strategies

Visits:	______ very helpful	seminars:	______ very helpful
	______ adequate		______ adequate
	______ some help		______ some help
	______ very little help		______ very little help

Classroom Discussion

Visits:	______ very helpful	seminars:	______ very helpful
	______ adequate		______ adequate
	______ some help		______ some help
	______ very little help		______ very little help

Flanders Interaction Analysis

Visits:	______ very helpful	seminars:	______ very helpful
	______ adequate		______ adequate
	______ some help		______ some help
	______ very little help		______ very little help

Providing classroom ideas and materials

Visits:	______ very helpful	seminars:	______ very helpful
	______ adequate		______ adequate
	______ some help		______ some help
	______ very little help		______ very little help

F (continued)

What aspect(s) of the teacher education program has been the most help in implementing the Pre-Postsecondary Program?

What aspects of the teacher education program have been the least helpful in implementing the Pre-Postsecondary Program?

What additions would you suggest for the teacher education program?

Please make other comments, suggestions, or criticisms.

INSTRUMENT F TEACHER COMMENTS

TEACHER EDUCATION EVALUATION

What aspect(s) of the teacher education program has been the most help in implementing the Pre-Postsecondary Program?

I entered the program late, was an experienced teacher and thus, the teacher ed program was of limited use.

Outside resource materials -- Ideas (i.e. content)

Exchange with other teachers

Probably the seminar

The program (teacher education) was personally helpful (it provided me with growth in understanding how to be a "better teacher") In this way it aided the Pre-Postsecondary Program but only indirectly. All implementation was strictly up to me.

To me personally, just the overall meetings and discussions were the most help. The use of the Flanders Analysis was helpful.

Questioning strategies were most helpful

Excellent job of keeping us informed about what was going on at other program. Gave us many good ideas that we might try in our program.

Some of the workshops.

What aspects of the teacher education program have been the least helpful in implementing the Pre-Postsecondary Program?

Blank

Changing teaching strategy

Blank

Question Mark

Nothing Really

The teacher educator should (if possible) have more subject matter knowledge

Becuase I came in to program in the middle, I felt I needed one or two basic text for reference

All aspects were helpful

Blank

What additions would you suggest for the teacher education program?

Perhaps unnecessary for teachers such as myself

Blank

Keep up the same pattern of education & reinforcement

None

To bring more "activity ideas" to the executing person

Nothing special

I felt a judgment had to be made as to what material was covered. Therefore I felt this material was covered well (better than a shot gun approach)

Since we were so close we could get whatever help was needed

Blank

Please make other comments, suggestions, or criticisms.

Gary, personally, was a very easy person to deal with. I enjoyed our discussions on education philosophy, etc.

Very helpful and concerned. Was willing to go to great lengths to find outside material and put them to use.

Blank

Again, since I've been involved with P.P.S.H.C. for only this past year, it's difficult for me to comment on past teacher education program seminars, etc.

Give more authority to teacher-educator (to hire & fire!)

Gerry's presence was a great help to me. His personality added much to enhance his visits.

Blank

Blank

I really can't evalute adquately since I was not really involved with Gary as a teacher-educator.

APPENDIX H

INSTRUMENT I

Program Organization and Teaching Concept Questionnaire

1. Which program are you in?

_______ Health _______ Social Science

2. Indicate your role in the program.

_______ Teacher _______ Administrator

3. For each facet of the program listed on the next page, place a check mark to indicate how often it was part of the program and how important it was to the succes of the program. You may add items at the bottom if you wish.

Answer the following questions in your own words. Use the back of the paper if necessary.

I. What do you consider to be the most positive features of the program?

____

____

____

____

____

II. What do you consider to be the weakest features of the program?

____

____

____

____

____

Item	Percent of time item was included in program						Importa to Progra	
	0%	25%	50%	75%	100%		Essential	Impor-tant
Students spend about 4½ hours each day with the teacher in their program		▨	▨	▨		▨		
Students' classwork is combined with activities that are similar to those of professionals in their field						▨		
Students are allowed to work at their own speed						▨		
Students visit places where people do the kinds of work the students are interested in						▨		
tudents work on classwork and activities that eet their particular needs, interests, and areer goals.						▨		
cademic knowledge is applied to the student's areer area						▨		
						▨		
						▨		

	Percent of time item was included in program					Importance of item to Program's success				
	0%	25%	50%	75%	100%	Essential	Important	Take it or leave it	Unimportant	Unnece sar
the		▨	▨	▨						
ties in										
inds										
t										
s										

III. Do you have any changes you would like to see made in the program?

____

____

____

____

IV. Give any other comments, suggestions, criticisms you might have.

____

____

____

____

V. Overall, how successful would you rate the Pre-Postsecondary program?

_____ Very Successful
_____ Successful
_____ Somewhat Successful
_____ Midly Successful
_____ Not Successful

INSTRUMENT I

TEACHER COMMENTS
PROGRAM ORGANIZATION AND TEACHING CONCEPT QUESTIONNAIRE

I. What do you consider to be the most positive features of the program?

Small class size--time for individualized instruction. Having students with basically the same interests. Large blocks of time in which to work. Opportunities for related field experiences.

The opportunity to explore various career fields

No doubt about this! The field experiences, students spent extended periods of time in these experiences.

The field experience using professionals allowed students to gain first hand knowledge. The academic level was also important for our students.

(1) The crossing over of traditional subject lines in teaching academic material. (2) the use of college facilities (3) the association of the students with college students (4) the cooperation of the administrators of the program

Small classes

Career orientation of program

High level of academic work; students taught by teachers of much better quality than normal H. S.

The experiences (field-career activity) that the students had and the follow-up guidance sessions

The academic areas--direction of program toward medical field

II. What do you consider to be the weakest features of the program?

Student selection procedures

Lack of a field experience coordinator

There has always been a question in my mind that the students were receiving the required academics that will enable them to compete in college.

My normal field experience lab time is 3 hours plus 1½ hours related all with one instructor. This is too much of one person. In addition, it is difficult for the instructor to prepare materials to cover this length of time. I should have included more outside speakers but the kids could have used a change of pace.

Weakest feature?

Having the same students together in the same room for two years.

Compared to the usual high school program there are no really weak features.

Social science aspect should have been divided into two shorter courses this year for more variety--for more specialization and to have different instructors.

The social structure which evolved by students being together in same room for two years

The physical placement of the program. Students had to leave home area, friends, etc., and travel many miles to get to the site. Also the "home school" guidance discouraged entrance into the program.

Selection of students

Having the same group together for two years.

III. Do you have any changes you would like to see made in the program?

A conflict arises out of attempting to individualize instruction and falling behind the pace of the "regular" physics and/or chemistry-math classes giving the student the feeling, which is founded, that he or she is missing out!

Selection of students is the most important aspect of this type program. It is essential that the students selected are truly interested in the career field they explore

Definitely more than one instructor should be involved with the students. Field work is a must.

Separate the students for more activities. In implementing the separate field experiences, students should be expected to provide their own transportation. The logistics are horrible otherwise.

Not in the Owens Program

See #II (selection of students)

In our case, perhaps students could take courses at the college to add variety

Yes--better selection procedure--adaptations of "break time" to fit into comprehensive type school setting

I would like to see a variety of optional courses offered.

IV. Give any other comments, suggestions, criticisms you might have.

I found the workshop(s) to be beneficial

Selection of students is the most important aspect of this type program. It is essential that the students selected are truly interested in the career field they explore.

Does not belong in a vocational environment. Students could have been screened much better.

Although probably impossible to do, we would have to find a way to eliminate the intellectual snobbery of the students.

Only praise for the overall program

Blank

Blank

More advance planning, pre-testing and evaluation determinations made before initiation of program. More coordination of program goals with program participants

Blank

APPENDIX I

INSTRUMENT J

PPSP Concept Implementation

Pre-Postsecondary Program (as implemented)

Please comment on the following aspects of the program. Please try to speak to this question as you consider each area. (a) What would you do differently to improve this area of PPSP? (or negatively stated). (b) What mistake(s) do you feel were made in the planning and implementation of this part of the program?

A. Selection of students ____

B. Selection of teachers ____

C. Curriculum development ______________________________________

D. Curriculum utilization ______________________________________

E. Organizational structure ____________________________________

F. Evaluation ____

Pre-Postsecondary Program (as a concept)

Please give your views about:

1. The separation of students according to occupational interest. ________

2. The idea of a 4½ hour block of time to devote to a program such as PPSP.

3. Fieldwork experiences (and of what kind) as an integral part of PPSP.

4. The best location or type of school for a PPS Program?

5. Integration of "academic" knowledge with information and skills relevant to the chosen occupation.

. The separation of students according to occupational interest.

Nothing wrong with this concept at all. It certainly makes teaching easier

As long as interest cover more than one specific area or if one area there is a large enough (15-25) students

I feel this should be done.

At the PPSC level they should not be too narrowly confined to one occupation only. Part of the goal is to expose the student to various occupations

OK

Difficult with a small group since they had similar social attitudes

Should be done

Very important to program--for a part of day or week--not necessary to have students together all day

The concept is good

2. The idea of a 4½ hour block of time to devote to a program such as PPSP

Too much for one instructor unless there is much more hands-on experience

I don't think it necessary to spend this much time each day

Excellent IF a qualified teacher is available to handle all the various phases

OK--The 3-hour science portion of program allows in-depth experience

Could probably be shorter

Students spent 5½ hours with PPSP teacher

Not necessary--Really one teacher cannot be that competent in all areas. Need one knowledgeable coordinator who "puts it all together"

I don't feel the number of contact hours is as important as what happens during that time. The whole emphasis in contact hours is overblown

We did not have the full 4½ hour time period in our program, but I do feel that it is necessary to run an effective laboratory oriented or field experience program.

. Fieldwork experiences (and of what kind) as an integral part of PPSP

Absolutely the best. We went for indepth experiences--one day week with same experience for 10+ weeks or 1 full week in same experience worked with brain damage, mental patients, social workers, senior citizens, educators

Field experience is one of the real pluses of the program

Very necessary to give practical knowledge to go along with the academic and laboratory knowledge

Good concept

Great--should be extended

Working in hospitals, health clinics

Very much the essence of the program. In my opinion--the program cannot be called PPSP Career without direct-hands-on experiences

This is a very important part of the concept

My students became bored with guest speakers and hospital walk-throughs. Actually work experience is essential but extremely difficult to organize in this area.

4. The best location or type of school for the PPS Program?

Vocational schools offer too many disadvantages

In a traditional school. This will eliminate many problems

A well-equipped high school or better a two year college

College--makes break with high school mediocrity. Does create social problems but adds to academic quality

On a college campus is good--more resources

In a high school

In home area--due to transportation problems--student participation in band, athletics--etc. social activities--plus availability of multiple course options (some students need trig others geometry

It can be best handled in the local high school. Separating students and taking them to another location tends to introduce elitism

Located close to hospitals and a university for library access.

Integration of "academic" knowledge with information and skills relevant to the chosen occupation.

All I did was to try to incorporate academic with field work

Can be done in most areas I work in except possibly mathematics

VERY NECESSARY--since the students must go on to more advanced training

In math, health does not integrate until at least the advanced undergraduate level of math

Essential

Students should not be in the same classroom with the same teachers for two years-it does not make for student maturity--students get stir crazy (teachers do too)

Very important and here is area where knowledgeable coordinator comes in-another must of program

This is as important as #3 above

Essential in that a student can get information and/or have experiences related to his field of interest thus helping him make up his mind about the intended career

A. Selection of Students

Program should be well defined so students know what is expected of them. Instructor should have last say as to who is accepted (my students used to get away from home school). Vocational Guidance was not involved in selection of students in fact, appeared to be friction on this point (I don't know why).

Must select students who have the proper academic and interest background

Generally speaking selection was adequately handled. Misinformation by high school counselors gave the teachers a wrong impression of the students

No knowledge of selection process. There was a wide range of abilities

Should be more equal in ability and motivation

Grade point average doesn't necessarily tell enough

Students were not screened very well--due to negative recommendation of home school counselors (didn't want to lose good students). Should at least be able to have successfully completed 9th & 10th college prep courses and be interested in field!

Selection of students (con't)

There could be more teacher involvement in the selection process

I wasn't here when the program was originally setup, but I understand that the process wasn't very thought out

B. Selection of teachers

An instructor with a broad educational and work base is best. This instructor should have reinforcement to back up his short comings

Teachers must be willing to spend a lot of time with individual students

More than adequate

Well done at Owens--used college teachers and high quality retired science teachers

Subject matter should be stressed on an equal level with teaching abilities

Use teachers who are specialists

Teachers prepared in area and truely dedicated to helping young people grow

High school teachers would be used to the maturity of the students, which tended to cause problems in a college setting

A better job could have been done here!

C. Curriculum development

Establish goals then call upon someone who has taught this program to work with instructor/s who will teach course

The curriculum can only give ideas and suggestions

Excellent

Well done at Owens, used math, science, social science, health, persons on college staff

If possible teachers who will actually be teaching the class should be part of this stage

Have it developed by knowledgeable people

Completely redevelop curriculum--to be accomplished before school program begins

C. Curriculum development (cont'd)

Concentrated involvement was very beneficial in understanding the program

Although I wasn't involved in this, I've seen the results of some (as at Toledo) and they seem favorable

D. Curriculum utilization

In my instance the curriculum was utilized but I am aware of other instances where it was not.

Can't use if you don't have

As an aid

Excellent

Seems to have been used only as a general guide

No comment written

If it is good, stick to it

Was not used--planned as I went along!

More time should be available for revision

E. Organizational structure

Should have one (didn't really know who was the "boss"!

Flexibility was best part of program

Not qualified to answer

Excellent

OK

No comment written

No comment written

Our organization, being in a college, but technically under the vocational high school was a problem in program identification

OK

Evaluation

Pre-plan evaluation and pre-test areas considered important

F. Evaluation (con't)

I just don't know

No comment written

Adequate

Seems to be not very well planned

No comment written

No comment written

Evaluation was fine

Seems to be fine, but in many cases the students don't see the need for the year-end evaluation by the KSU testing service.

INSTRUMENT J

ADMINISTRATORS' COMMENTS

1. The separation of students according to occupational interest.

   Students should have some contact with other students with different interests

   If you mean broad area which (health courses, business courses, etc) yes, otherwise no.

2. The idea of a 4½ block of time to devote to a program such as PPSP

   Very good--difficult to plan and provide experiences for all the different levels of student interest and need but very good way to approach skill

   OK, but should not have the same teacher for all the hours

3. Fieldwork experiences (and of what kind) as an integral part of PPSP

   Most important--aspect of program.

   Necessary--should be as we did at Owens

4. The best location or type of school for a PPS Program?

   Comprehensive High School for "social" if no other reason

   A two-year technical college has provided excellent facilities and resources for operation of the program

5. Integration of "academic" knowledge with information and skills relevant to the chosen occupation.

   No problem--ALL education is vocational in vature if you use that education (information and skills) in the vocation I.E., French is vocational if you are going to be an interpreter--Math is vocational if you are going to be an engineer--Get the point?

   Integration-- key word--I support it--this is what the program is all about

Selection of students

Long range planning--we were forced to recruit students, teachers, develop program,etc. all within a few weeks time. We needed the "program" prior to meeting each student

Interviews with each prospective student and references from past teachers

B. Selection of teachers

Believe we would use more of a team approach using two or three teachers

Nothing--I have the best!

C. Curriculum development

Again, select teachers after development of ideas, broad goals, etc., then work with teacher, business and professional people, colleges, etc.--to plan BEFORE schedules are recruited.

More time would have produced a better curriculum although I feel we had an excellent curriculum considering the condition under which it was developed

D. Curriculum utilization

I believe we're ready NOW to develop curriculum for proper utilization based upon the program.

Utilized as planned. A formative evaluation plan would have been helpful actually an implementation plan should have been developed

E. Organizational Structure

In local high school not the vocational center

Locally OK--I still don't know what it is on the state level

F. Evaluation

Need to start much sooner and MUST have a follow-up on the success or failure of these kids in college

Should be pre-planned

APPENDIX J

Spoken Comments of Administrators at Evaluation Workshop Regarding:

A. Teacher selection

1. A teacher should have a strong knowledge of the discipline but be flexible about methods.

2. A teacher in this kind of program should have a good overview of the subject matter and be able to integrate it with activities.

B. Getting cooperation from home schools

1. Don't have cooperation in a vocational setting but in a typical high school you would. Most opposition to the program was from guidance counselors who worried about students losing unit credits.

2. PPSP students didn't want to be associated with Penta but with Owens. Vocational students are considered second class--problem students--machine shop students. We had less trouble recruiting because of being from Owens. One must persuade the administration, not the students. Involve administrators so they get direct benefit and don't lose state money and unit credits.

C. Student selection

1. We only planned to take 15 but we accepted 17 from the applicants and 11 of those came. Some students have to come 20 or even 40 miles to be in the program.

The remaining comments are general and were not made in relation to particular topics.

1. I don't see any way a person with only a B.S. in the area of specialization can handle the rigorous content or especially the integration of knowledge and activity.

2. Students have come asking to join PPSP, both kids and parents are sold on the idea but not educators. Maybe they feel left out, dictated to by vocational education.

3. I have had parents disappointed that their children can't be in PPSP. The trouble is in selling it to educators.

4. It would be a nice gesture to have a letter from Byrl Shoemaker to the students and parents thanking them.

5. The Program is very adaptable to different situations.

(Evaluator question: But the program is very different at different places. We don't know what is applicable.)

6. I am bothered that the curriculum guide developed at Owens or any other curriculum wasn't used everywhere.

7. If they had kept applicants as controls we would know more what had happened. Trying to implement one curriculum would at least tell you if the curriculum holds water across teachers. It is hard to evaluate teachers.

8. It would have been good to have been able to draw up the design before we did the experiment.

9. Having been a high school principal, I can say that this kind of program could be a success in any comprehensive high school IF the administration is sold on it.

10. We have a large library and facilities, that is, we have things not available to regular high schools but 95% of what was used in the program is in regular high schools.

11. Whatever else you have--it all boils down to having a qualified teacher.

12. How did we sell the faculty on the idea? The idea had integrity and sold itself.

13. Some academic teachers have blinders on and won't change.

14. Using experienced high school teachers didn't work unless they are fed up with regular high school.

15. Owens teachers meet every week and maintain consistency. All our teachers but one were either college teachers or were fed up with regular high school and wanted a new way.

But "ritualist" high school teachers aren't ready for change and don't want to think about what they do. When you interview people you can tell if they're traditionally oriented or not - you have a gut-level response.

16. I look for enthusiasm. Do they like kids? Flexibility comes out in the interview.

17. I look to see if they're involved in what they're doing.

18. I've been fooled in choosing, though.

19. You need a team approach for this kind of program. Can't expect one person to know the subject and the profession all the time.

20. You need a coordinator with an overview. Need lead time--planning time.

APPENDIX K

INSTRUMENT K
STUDENT QUESTIONNAIRE

It is likely that programs like the Pre-Postsecondary Program (PPSP) will be established in other school districts. Because of your experience as a student in the PPSP, your comments would be very helpful in the planning of similar programs. Please comment on the following aspects of the program in a way that you think would be helpful to someone planning a similar program. A member of the evaluation team will lead a discussion on each area and answer any of your questions about the questionnaire.

A. Selection of students: academic ability ________________________

____

vocational interests ____

____

What was right or wrong with your PPSP's method of selection? __

____

How would you locate and inform potential students? __________

____

B. Selection of teachers: academic background ________________

____

vocational background ____

____

What was right or wrong with your PPSP's method of teacher selection?

____

____

C. Selection of materials and texts: ______________________

____

What was right or wrong with your PPSP's selection? __________

____

D. Organization of a PPSP: transportation ____________________

____

class scheduling ____________________

____

choice of field experiences ____________________

____

What was right or wrong with your PPSP's organization __________

____

E. Coordination between the PPSP and the home school __________

____

extracurricular activities ____________________

____

guidance and information ____________________

____

What was right or wrong with the coordination betweeen your PPSP and your home school? ____________________

____

F. Academic program: integration with field experiences __________

____

integration of academic subjects (i.e., math with science) toward occupational choice ____________________

____

How does the amount and level of learning you derived from the PPSP compare with what you anticipated? ____________________

____

with what you would have expected at your home school? ____________

____

G. Concept of PPSP: separation of students according to occupational interests ____________

____

____

field experiences ____________

____

integration of academic and vocational information and skills ____

____

best location or type of school for PPSP ____________

____

____

Which of the above was responsible for your decision to be in the PPSP ____________

____

____

For what other reasons did you choose the PPSP? ____________

____

____

INSTRUMENT K

Evaluator Guidelines for Taped Discussion Sections

The following should give you some idea of what to say as you guide the students in completing the Student Questionnaire.

Now is the time for all good students to provide constructive criticism and/or praise. Your comments will be included in the evaluation. Your suggestions about what aspects of the program were good or bad will be considered in the planning of future Pre-Postsecondary Programs.

Role-Playing Assignment

As you fill out the questionnaire, imagine that you are an educator in charge of planning a Pre-Postsecondary Program and setting it up in a local school district. You will have to make a number of decisions: which students to select for the program, which teachers would be best, etc. As we go through each section of the questionnaire, I will mention a number of factors that you might want to consider before giving your thoughts on this aspect of the program. Also, there is a question in each section asking you to assess the PPSP as it was actually carried out. [PPSP as it could or should be, and PPSP as it was.]

A. For example, in section A, as you plan a Pre-Postsecondary Program, what guidelines would you use in selecting students?

1. What kind of academic ability should a student have to benefit from a PPSP?
2. Is academic ability important? Why?
3. What vocational interests should a student have to benefit from a PPSP? How definite should vocational choice be?
4. How important are vocational interests?
5. From your experienced perspective, how would you have selected students for the PPSP? What was right or wrong with the selection procedure?
6. How would you locate students for a PPSP and inform them about the program?

After you have written responses to this section, we will discuss it and any further remarks you would like to make will be recorded. Any comments you make will not be reported in association with your name. Please give us your (frank) (real) thoughts. They will remain confidential.

[Let them fill out Section A]
Repeat questions 1-6 for oral comments.

In Section B:

1. What kind of academic background should PPSP teachers have? Varied? Advanced? Are special teaching techniques important?

2. What kind of vocational background should PPSP teachers have? Do they need to have experience in the health professions?

3. How well did your PPSP do at selecting teachers? What, if anything, would you have done differently?

[Let them fill in Section B]

(Tape) Repeat questions 1-3 for oral comments.

Section C:

1. What kind of materials and texts would be most appropriate for a PPSP? Are there special materials or books that you would consider essential, that wouldn't be found in a typical high school?

2. What, if anything, would you have changed in the materials and texts used at your PPSP? What materials and texts were especially good?

[Let them fill in Section C]
(Tape) Repeat questions 1 and 2 for oral comments.

Section D:

1. What observations can you offer about the best way to organize (a) transportation and (b) class scheduling?

2. What kinds of field experiences would be most helpful and informative?

3. How well did your PPSP organize these aspects of the program?

[Let them fill in Section D]
Repeat questions 1-3 for oral comments.

Section E:

1. How would you coordinate the efforts of the PPSP and the home school? Or would you set up the PPSP separately?

2. How would you provide opportunities for extracurricular activities, guidance and other information for PPSP students?

3. How well did your PPSP coordinate efforts with your home school?

[Let them fill in Section E]
Repeat questions 1-3 for oral comments.

Section F:

1. How would you integrate a PPSP academic program with field experiences?

2. How would you integrate academic subjects in light of occupational choice?

3. What kind of learning did you expect to occur in a PPSP? How does what actually occurred compare with your expectations?

4. How does the learning from the PPSP compare with what you would have learned in your home school? In amount? In type of learning?

[Let them fill in Section F]
Repeat questions 1-4 for oral comments.

Section G:

How important to your concept of PPSP is:

1. Separating students into a special school and/or program because of their vocational interests?

2. Providing field experiences?

3. Integrating academic and vocational information and skills?

4. Where should a PPSP be located?

5. What idea (whether mentioned or not) about PPSP was most important in your decision to be in PPSP?

INSTRUMENT J

Comments of Firestone PPSP Students Interviewed at Firestone

A. Selection of students: academic ability

Above average

High academic ability

At least a 3.0 average--students selected should also have an interest for independent study

Upper part of class

Enough ability to keep up with class work and extra work with program

At least a B average

Above average--3.0 or better

The student should have above average grades in the subjects he has taken in high school up to date.

vocational interests

Should have generalized interest in this field of study

Medical interests and science research related fields, not nurses, etc.

Seriously considering the field which the program covers

Motivation and independent interests

Should be close to that of the program

Science or health or social

Health fields--nursing, doctors, dentists, lab technicians, etc.

The student would have to have a strong interest in the vocation of the PPSP; this could be found out through questionnaires and interviews.

What was right or wrong with your PPSP's method of selection?

It accepted students who were not all above average

Too diverse in academic ability

Not enough applicants from schools other than Firestone

What was right or wrong with your PPSP's method of selection (cont.)

Out of the interested students, they picked for the highest point average.

Can't answer

The people in the program were mainly from one school. Look for motivation.

Standards were lowered to bring in uncapable and uninterested students from other schools. Capable students were turned down because of a lack of credits from certain areas.

How would you locate and inform potential students?

I would assure the student that he would not suffer in any way academically for his involvement.

Looking through students records and interview then the scientifically inclined.

For the medical-type program, at least, inform students via their math and science classes. Most students pursuing this vocation would be continuing in science.

Through announcements and students who were in the program before

Give talks to sophomores around the city

Pamphlets, bulletins, announcements in school, newspaper

Talks with potential students in a classroom situation, possibly some form of brochure to "advertise" the PPSP.

B. Selection of teachers: academic background

B.S. or M.A. degrees if possible

High math background, high physics background, high chemistry and biology background

I don't think that the teacher's achievement has as much to do with it as the teacher's course of study.

The biology was very good, the chemistry not so good. I feel I am not prepared for college chemistry.

Best college background

Science major, social minor

Need teachers with diverse education. Qualified in a few areas.

Selection of teacher[redacted]cademic background (cont.)

Teachers should not veryday type teacher. They should be special se of being high achievers, interested in their work, willing to do more for the program than to teach from a textbook.

vocational background

As much experience with it as possible

Medical and science related

The teacher should have a diversified education and an ability to motivate others. Plus also a good organizer.

Mr. Sap. had entered a medical field so knew what was going on (sic).

Excellent background in the field they would be responsible for in the program.

Health worker (VISTA, etc.) Teaching experience

Teaching and have had a health-field related job.

Should have some knowledge of the PPSP studies

What was right or wrong with your PPSP's method of teacher selection?

They took teachers who were not as excellent in background and teaching ability as they should have been.

Not selective enough of teacher qualifications; teacher should be more specific in his field

Some of our teachers were not necessarily as enthusiastic about the success of the program as they could have been.

Not aggressive enough

A person who went through Pre-Dentistry and a few years of Dental school is one of our teachers, he has been through what we are wanting to do.

D. Organization of a PPSP: transportation

Bus or van transportation as they had is acceptable

Busses--basically the way it is

Should be easily accessible for field trips

The mini bus is needed

Basically good

Should have van at disposal, also students may drive

A bus for those too far away to walk and for trips

Get a small bus that is able to transport the entire class

class scheduling

Not a four block period for every day

Adequate

One that covers all aspects of the program, yet does not clash

We had such a wide range of classes, and did not take everybody into account

Students who were taking courses outside that program but during the program's time prevented many field trips. Dull to students not wanting or being able to miss their other classes.

Try to keep people of program together

Arrange it so that the kids aren't all in the same classes. Four periods straight is too much; should have only two at a time.

Block of a few periods in the morning or afternoon

choice of field experiences

Should allow the student to see professionals in everyday work

Work in hospitals--visit more labs--see more doctors

Diversified. The students should be given lists of experiences available.

Field experiences should have been going all year.

choice of field experiences (cont.)

Good

Lectures, movies, visitations

Should vary to the student's interests. Hospitals, clinics, etc.

A wide range of field experiences are the most helpful and informative, in order to give the student a look at many of the specialties.

What was right or wrong with your PPSP's organization?

It should have been much classroom and academically oriented

Hardly any field trips concerning careers

Transportation--good   Scheduling--poor (too many conflicts)
Field experiences--fair

Field trips should have been organized better

It wasn't.

Too many group trips. Should be more individual and for long periods of time.

Not enough field experiences this year pertaining to the health fields.

E. Coordination between the PPSP and the home school

Organized sufficiently as it was

Adequate

Less isolation of the PPSP from the rest of the school. Ideally team teaching with other teachers within the school could be achieved.

Should be better

Some teachers were hostile toward the program

Should have weekly contact and progress reports and programming.

A complete transfer of students to attend classes in one school extracurricular activities

Not necessary

Adequate--go to new school--have all activities there

If the activities corresponded with students' interests and hobbies--great!

Special interest groups could be formed for extra activities

Minor interference

No trouble

There should be that option. Clubs such as bird clubs, environmental clubs, etc.

None are necessary

guidance and information

Should be on a personal basis

All at new school

A nice help would be a kind of guidance committee composed of professionals in our field.

Good

Teacher should have individual contact with students

The teacher of the program should be able to deal with this.

What was right or wrong with the coordination between your PPSP and your home school?

Nothing

Everything right

Too much isolation

Not separated good enough

Other teachers became irritated when we were on field trips

They don't really know what we are doing and don't realize what is possible.

F. Academic program: integration with field experiences

Should be secondary to classroom or lab and lectures

Hardly any. I would have shown work in lab at hospital as assistants.

Provide designated times for field trips--so there are no conflicts with academics.

Many times classes were held while people were out on field trips.

Could have been better

Only a doctor could teach us this.

Relate the two--i.e. do anatomy if field experience is physical therapy.

Field experiences should be coordinated with the present program of studies.

integration of academic subjects (i.e., math with science) toward occupational choice

These should be kept separate from the occupational associations; otherwise don't try to integrate the occupation with learning of the subject material.

Hardly any. I would assign more long-range projects.

This is a utopian idea--on the high school level you are dealing in generalities, and integrating medicine with science is next to impossible on this level.

High school must be the place for basic math and science. It is hard to relate this to a health field.

Not good.

Our math classes include people outside the program who could care less about science. This is not possible.

For the Engineering program, physics and math are both important.

How does the amount and level of learning you derived from the PPSP compare with what you anticipated?

It should and could have been much more.

I did not receive what I expected but I did learn something.

The courses offered in this school on the most part were superior to the experimental ones taught in the program.

My biology and math were very good. Chemistry was not that good. I had hoped for a good background in science and math with an added interest in health fields.

Poor

I expected more teachers who weren't teachers but professionals.

It only got as far as regular classes with the exception of my experience at Children's.

Got what I expected.

How does the amount and level of learning you derived from the PPSP compare with what you would have expected at your home school?

It is still academically deficient.

I would have learned more at my home school.

About the same

Same

Classes are same, field trips are only extra

Same

Same

G. Concept of PPSP: separation of students according to occupational interests

Not necessary to spend so much time dwelling on the generalized occupations

Very important--the more selected, the better

As long as the occupations are similar, separations are not necessary

Within the health program, special interest groups could have been formed

G. Concept of PPSP: separation of students according to occupational interests (cont.)

Good

Not really possible as far as school (sic) Field trips should be free choice

In some areas it is necessary. However, for your basic biology, chemistry, and physics it isn't necessary. For outside field experiences, it would be.

A separate program for each occupational interest--Health, Engineering. Possibly break it down in each area (Health--Nursing, Veterinarian, Physician)

field experiences

Repetition and not organized well

Very important

One of the most important aspects. Most field trips cannot be learned from a book.

More individual or small group field experiences.

Very helpful.

Vital part of program.

Would have to vary from person to person. Each individual should observe at several facilities.

A good number of field experiences to inform the student of a lot of special fields.

integration of academic and vocational information and skills

Not necessary

Very important--combine through language projects

Not feasible at this time in a medical program

At this level it is pretty separate

Nearly impossible

It is necessary to get a clear idea of what is going to be expected of you.

best location or type of school for PPSP

Where it was located

Academic school such as Firestone. In affluent area so no trouble starts.

Where you will find most of the interested students. Also, close to medical centers and hospitals.

A highly academic school--any location.

College prep

Close to hospitals; good school curriculum

A central location for everyone

Vocational type school with a high academic standard

Which of the above was responsible for your decision to be in the PPSP?

I wanted to be a doctor and wanted to find out more about the different kinds, I would have a choice to be. This program offered this.

Field experiences--the chance to observe our chosen occupations on a first-hand basis.

Location of school and interest in health fields.

Field experiences

Field experiences

Location, field experiences

Field experiences and the location of school

For what other reasons did you choose the PPSP?

I hoped that it would be rewarding academically as well as some education to the actuality of the profession.

Chance for good science courses combined with contact with individuals in the profession.

I'm interested in entering a health field. I've enjoyed my fellow classmates, and I would not have had the opportunity to take biology.

Vocational interests

For what other reasons did you choose the PPSP? (cont.)

Good school curriculum

I wasn't satisfied with my other classes.

INSTRUMENT J

Comments of Firestone PPSP Students Interviewed at Workshop in Columbus

A. Selection of students: academic ability

Should be above average, able to do advanced work, but could have another group of lower but similar mentality

Allow anyone with reasonable ability--They will find out more about what their chances are.

A student who does well (B,A) in Math and Sciences

(1) People should be very interested (2) Students need not be academically superior

A good academic average should be required, but not a 4.0, perhaps a B average

Need students with equal ability. It would help if at least 3.00-3.50--Make sure all are equal--consider the school background

The person should be average (C or better), willing to work

Important

Moderately important

Average or above average

Strong science background

Vocational interests

Should be similar--nurses, doctors, vets, medical technologists--people should be just interested, not necessarily dedicated

Can be a wide range--would be preferable to separate potential doctors from others

As long as it is in related field. All people indefinite or not should be allowed in.

Field should not be too specific--because you learn more when you can experience more of a wide-angle learning resource.

Vocational interests (cont.)

Important for everyone to be interested in a health career, not just one field such as M.D.'s. As long as the interest is there.

Don't need to have same--people should work individually. Can try out program.

Anybody interested in a health vocation. This gives them a chance to see other fields in the health field besides theirs.

Should surround a certain profession (physician).

If they were somewhat interested in the medical field.

Some medical interest needed

Would not be stressed.

What was right or wrong with your PPSP's method of selection?

It was alright, not restrictive enough in Pre-Engineering.

It was right for some but insufficiently competitive for me.

Well run, but not as selective as it should be.

Not everybody who was qualified was accepted.

It was okay, perhaps more personal interviews would help.

Different schools had different degrees of students. So, ones with same grades have varying intelligence.

Most of the students who applied were from Firestone. There was not enough students who knew about it in other schools.

They relied too heavily on grades.

Very good; private interviews and also counselor guidance.

I see nothing wrong.

How would you locate and inform potential students?

Have people who were in the program talk to small groups of students--go into classes--talk to all kinds of students

Inform students of the program and allow them to apply for it.

Offer as a course.

Successful graduates--posters--lectures--advisors

Brochures, counselors, students talking to other students

By talking to students, especially in the science courses and brochures.

Send out a pamphlet and have a meeting for interested students with past students.

By telling complete classes at class meetings

Inform them through their school.

Assemblies in front of entire group of prospective students

Through the school system, former students, assemblies, etc.

B. Selection of teachers: academic background

Wide knowledge of subjects related to area of program

Good background in sciences, particularly health fields

Diversified but mostly math and science oriented

Knowledge of field--how to relate study with profession

A good educational background with emphasis on science and math. The teacher should have an interest in the health careers.

Need diversified background. Would be important to have someone that knew about the health careers and what it entailed.

He should have a good background in the math and science and an interest in the health vocations.

Important

He should know what he's talking about in his field.

Well-rounded in biology and medicine

Selection of teachers: academic background (cont.)

Strong in medical background who has been in medical school

Vocational background

Should be familiar with most jobs related to subject area, with in-depth knowledge of at least one

Some experience in the field to be taught

Again diversified but with emphasis on particular program

Not necessary

This can be a learning situation for the teacher as well--he doesn't have to be a doctor to teach it.

It would help the program if they had worked in a medical career.

He should have had experience in a health vocation.

Unimportant

He should also have a wide vocational background to help relate with us

Not important as long as it is related to the medical field

Medical school background

What was right or wrong with your PPSP's method of teacher selection?

Have to be carefully screened, have to be progressive and able to spend time on the program, mine wasn't screened carefully enough.

One of our teachers was basically just a poor teacher, the other two were good. One with a strong background in health sciences.

They were teachers, not doctors. They have never been through medical school.

Teachers could not relate study with profession as well as I would have liked to see.

Basically the teachers have been OK. Our biology teacher was good. Perhaps a better math discipline would be better.

What was right or wrong with your PPSP's method of teacher selection? (cont.)

One teacher tried to work more with it as a program (Gross) but this year's cared more for academic work and the individual. Need more diversity.

We didn't get a good teacher for the math. We did get good science teachers, especially our biology teacher.

The teachers were not really qualified to teach math.

Some teachers were very well adapted while others lacked all communication with the students.

Really I can see no wrong because I have no one to compare him to.

C. Selection of materials and texts:

We could have used a lot of new material in Pre-Eng but used just regular textbooks. They were terrible.

Good: microscope, oil immersion lenses, balances, dissecting kits, cats Bad: programmable calculators, parisitology text

Calculator--totally useless, everything was academically oriented--something that can be received through ordinary classes.

Too much money was spent on things we didn't use.

The selection was pretty good. The calculators were the biggest waste.

Calculators were bad. But for chemistry could have used pocket calculators for all for same amount of money. Microscope good (electric) could have used more.

I wish we could have had better materials for the chemistry section. Biology was super.

Calculator was unimportant and should be shot (sic)

The calculator was useless.

Nothing

D. Organization of a PPSP: transportation

Had to provide our own--it was very difficult at times, the van was desperately needed

Adequate to and from school--van was good for trips

NONE Van is good

None (personally) We had our own van

I was from Firestone so no problems, the van was great though

Not a problem--helped having van

No problem for me

Should be provided for those commuting

Bus service for those who live too far from school

Class scheduling

Should be flexible, we were too structured this year.

Created problems last year--conflict with math outside the program

Everyone should take same science courses

Good. Morning--regular classes, afternoon--PPSP

Went pretty well. Not many people were hurt by the scheduling of the program.

Need the time for trips but normally didn't use all the time. Should have been more open.

I don't think you need four periods in the afternoon. Should have certain days set aside for field trips and labs.

Should be effective to the needs of most of the students, but should not be too long.

No need of three hours every day.

Choice of field experiences

We didn't have any this year, we needed them. I couldn't because of Chemistry every day.

Few were beneficial, more should be arranged by the teacher. It is difficult to arrange your own. Good ones: Summit County Coroner, Children's Hospital Surgery

Speakers and first hand experience

Speakers and first hand experience working on the job with doctors

Volunteer work was best--social work, vets

Could have been beneficial. Jobs in the field arranged.

All field trips were good except we went to four hospitals. After a while they all look the same. The best were the ones we went on our own, because we saw more.

Going to hospitals in small groups.

Visiting in small groups, where you have more freedom.

Hospitals, clinics and other related functions.

Visiting specific parts of hospitals and seeing and using equipment--great.

What was right or wrong with your PPSP's organization?

Terribly structured, no chance to work out something as a group or on your own.

No organized field experience--should be arranged--not just being told to "arrange something for the day after tomorrow"

Everyone is taking different courses

Nothing

More organized field experiences. More people could have been involved, but they didn't want to take the time and trouble to do it (the students, I mean).

Wasn't organized. Was just academic work.

Changing of classrooms. Want just one classroom for program.

E. Coordination between the PPSP and the home school

No problems

No problems

No problems

I'm from Firestone

Is home school. Had no problems

Stayed at the home school

No problems

Transportation should be provided

None

Extracurricular activities

Hard to stay after school when you have to catch the only bus home. Virtually no contact with school activities.

No problems

Is a problem when there are trips or getting to work

No

Cross Country Track

Had problems with this at new school.

Not for me--most extracurricular activities are after school

Guidance and information

Better than at my home school

Well-organized help

Everything was fine, no problems

None

No

Guidance and information (cont.)

Very good at new school but lacked at home school

None

What was right or wrong with the coordination between your PPSP and your home school?

No problems because I completely transferred schools

I am basically just a student at Firestone.

Decent

Nothing

None

Stayed at the same school

None

None--at home school

F. Academic program: integration with field experiences

No integration--no field experiences

Almost none

Little

Yes

Biology was good, it was related, math was not

Wasn't at all

The biology was very much integrated with field experiences
Not so much math or chemistry.

Yes

Not as much as there could have been.

Integration of academic subjects (i.e., math with science) toward occupational choice

No integration

Not interrelated

Very little

Integration of subjects (i.e., math with science) toward occupational choice (cont.)

Math taught without related to occupational choice and vice-versa

Math wasn't integrated at all but it would be hard to do it. Science was very integrated.

None--were unrelated

Math was not related to science unless our science teacher did it himself.

Totally separated in math. Health related with science.

Math not related to science

How does the amount and level of learning you derived from the PPSP compare with what you anticipated?

Did not learn anything in the program as well as I would have at Firestone outside the program

Level of learning is lower than I would have gotten conventionally with the exception of biology.

Less. The math course was terrible!

I learned more and I am now more prepared.

I learned chemistry as well as regular classes, biology was better.

I got a better biology background. It gave us more time.

We have learned more in biology in the program than we would have outside. Math and chemistry we lost.

It was what I expected.

I felt that I learned as much as I anticipated.

I wasn't hurt academically in this program.

I believe I learned more in the science program than I would have learned in the regular science program.

With what you would have expected at your home school?

Academics at Firestone are superior to my home school but the program was not superior to Firestone's.

Not as high academically.

Poor math. Good chemistry, fair physics.

Yes

Than regular, math wasn't good at all!

Yes, in sciences, but not in math

Explained before

I would have learned more physics with standard curriculum

I feel I got a better education in the math department.

I would have received a better education in a standard course, but not as to the health field.

Did not get what I thought--but more than standard curriculum.

G. Concept of PPSP: separation of students according to occupational interests

Good idea to be with students of similar interests--except you should have contact with other students.

Good

Very beneficial

There shouldn't be too much separation because people don't really know what they want, get a taste of everything

Yes because it did give occupational help

I don't feel that you need four periods a day for five days. You can set aside days for field experiences and discussion.

Shouldn't be isolated all together but separated from other students.

Somewhat important if you have enough students who know what they want to do. Also if you have enough students interested in the field.

Field experiences

Individual field experiences very important

Poor organization, good the first year

Important

Very important

More organized, people could have gotten more involved

Are important. Can help with ideas.

The individual ones were good. Groups--you got the run through.

Individual only; groups lacked.

Lets you see medical professions more clearly than you would normally.

Integration of academic and vocational information and skills

Should be heavily intermixed

More should be done

Important

More should be done (biology was OK)

It is necessary, although it wasn't done

Biology was integrated between academic and vocational very well

Important that you don't fall behind the formal school system

Best location or type of school for PPSP

Central location--everyone travels there and also should not be limited by school rules (signing in and out, hall passes, etc.) Should be able to get advanced equipment.

It's very good for the students who live near it, not good if you live far.

Centralized local--not too far with provided transportation

Best location or type of school for PPSP (cont.)

A central high school with a room for the PPSP. Good academic background

Should be in a place with more equipment and where the program isn't hampered by the normal school regulations.

Best academic school record

Should be the school with the best academic record

Should be at local high school so one doesn't have to travel great distances

College or university with the equipment

Which of the above was responsible for your decision to be in the PPSP?

Open classes with field experience

Separation of students

To find out whether I wanted to go into the medical field

Integration of academic and vocational information and skills

Field experiences, academics

The vocational experiences to help me with my decision about what career

The idea of doing things related to what I wanted to do

None

My interest in the field

Academic and vocational information

For what other reasons did you choose the PPSP?

Alternative to regular classes, chance to learn more

I thought it might look good on applications to six-year med schools and possibly to med schools later.

It helped me decide that I didn't want the medical field.

For what other reasons did you choose the PPSP? (cont.)

I was not sure of my career choice and with the help of the PPSP I narrowed down my career choice considerably.

Wanted to learn more about medicine (and I did).

I wanted an alternative to the regular curriculum, to be more interested in school.

Because I was bored with school and wanted to do things related with my field.

To determine whether I wanted to go into medicine

To learn more about the medical field and if I was interested in it

Medical field--wanted to be a vet.

INSTRUMENT K SCARLET OAKS STUDENT COMMENTS

STUDENT QUESTIONNAIRE

A. Selection of students: academic ability

I do think they would adjust better and handle the freedom; someone that had thought they would like to go on to school after high school had taken pre-college courses.

Average to above average--someone who wants to go to college.

Should be average or higher mainly because I consider the same to be more mature which is definitely needed.

Should have academic ability average or higher. Should show interest.

Average ability, with a will to seek and learn.

Student should be an open and average student.

Should be not too restrictive, chance given

Should have halfway decent grade average

Ability to learn--to be able to pick up things you are interested in is important. C - B average

Vocational interests

Health, area of study

Health

Should be interested in that particular vocational program which they are entering

Student should have selected a certain vocation or have a general interest in area as in Health or Engineering.

General area of study

Should be a narrow vocational interest

Any area will give student more worth in learning what they care about. Any job area would work.

An interest in health careers

General area of work (health, engineering, etc.) One should have an idea of what general type of work he would like to do.

What was right or wrong with your PPSP's method of selection?

Home school discouraged us from going, not much was told to us about what we were getting into.

My school really gave us a hard time about going.

They didn't select, they accepted all who applied.

Should have interviewed students. They did explain program, which was good.

Since it was so new, the selection was vague. Not much competition. All we did was filled out application for program.

Have no idea how we were selected.

Good method, home schools held people back.

They selected people who would definitely graduate so we wouldn't be hurt if we go back.

I'm not sure how I was selected. There wasn't much competition.

How would you locate and inform potential students?

From high school--home high school

Through home school

Look at records and talk to those who qualified academically, maturity-wise and vocational interest-wise.

I would go to schools and talk to students in 9th and 10th grades and explain program to them, then have them fill out the application.

Students set in certain vocational direction

Make up a special test for student interest

Home school, counselors

Pass out information of what has happened with us and talk to interested parties.

Inform at home schools of the program, include all information about the program.

B. Selection of teachers: academic background

A teaching degree and a degree in field of study.

Should have some counseling abilities and college for the area of chosen profession. Interest in people and patience.

Should have a background in that area in which he teaches. A strong academic background.

Varied background specialized in that area. An education but mostly trained in that area and able to work with kids.

Varied backgrounds.

Should have counseling, teaching, and disciplinary abilities.

Vocational background

Much vocational background most important.

Not too important; can learn about careers along with the students.

Experience needed in what they are teaching

Should know the different fields in the area as in Health. Should have that background experience in working.

Worked in field taught and open-minded.

Should have experience in field of study

At least an R. N. and experienced in most phases of the medical field.

Worked in area--know some of the ins and outs of area and can lead and work with people

What was right or wrong with your PPSP's method of teacher selection?

Mrs. Miller was a perfect choice for our class.

It was right because Mrs. Miller was first off a mother, then an R. N., then a high school counselor. She's the right one for the job.

Nothing was wrong with the selection.

Their choice for Mrs. Miller was fantastic.

I don't know how they selected them but they did a good job.

Our teacher was excellent.

Mrs. Miller is all right.

Probably amount of time left to select them in. People just aren't trained that way, they develop into a potential teacher by experience and know-how.

Should have had more teaching and disciplinary background.

C. Selection of materials and texts

Yes--intensified in area. College prep--need extra health related

Good--took long enough to get them, however.

They were great--college prep

All texts related to area. College prep. Anatomy, Physiology, Chemistry, Biology, Vet med books.

(College preparatory) They were great selections. Our physiology book was great and chemistry book was good. All our visual aids materials were good also.

Excellent books and other materials, aids provided; college prep

College prep material

Should be a lot of lab work with many materials

Some English (college) Chemistry

What was right or wrong with your PPSP's selection?

Nothing wrong--more of anything!!

College prep--good--no particular reason; would have been found in a typical high school. More books, fewer audio-visual aids. Books aren't as important as the teacher and students using them.

They were good--math because you could work at your own pace.

All the books we have are very good. They have good explanations and are understandable.

Nothing. More academic books.

I felt the books and other materials were good; lab materials.

More selection

The books seem O.K.

What was right is that they saw that we needed some special things for college. We could have used more books.

D. Organization of a PPSP: transportation

This was the only bad point--I was on a bus for 45 minutes each way.

Transportation setup for me is good. There is no problem.

Too far to travel everyday but transportation was good. Bus was best.

Should not be too far or as far.

Distance was great but unavoidable--more programs

We got there on time but the long trip was a pain.

For us the distance was bad and that was my only problem.

They gave transportation but wasn't too good.

Transportation wasn't very good. Too many buses, too much time spent.

Class Scheduling

This year it was great.

All classes are at good times, divided into necessary time slots.

Excellent class scheduling.

No opinion.

Good

Take as long for each subject as it takes to finish an idea, don't leave them hanging just because the time is up.

This year was more organized and I enjoyed it more.

Good

Excellent

Choice of field experiences

Excellent

Good

Mrs. Miller had the final decision in it and headed them.

What the students think they might like and other things to make sure that they won't enter the wrong area.

Nothing except more time might have improved.

Should be up to the students with counseling done by the teacher.

Placed in a field I was interested in--good experience. Around area you are interested in.

Mrs. Miller knew our interest and selected our placement accordingly. We could change if we wanted.

They were good really helped my decision about a career.

What was right or wrong with your PPSP's organization?

Nothing that I know of.

Everything is OK, they could have done better at choosing our first chemistry teacher.

Nothing--good organization.

The first half year no one knew what they were doing.

Nothing, except more time might have improved.

We did just as I said, we saw what we wanted first then "tried on" other things.

The scheduling was good and gave a break in the routine.

Nothing except transportation.

Except for transportation, OK.

E. Coordination between the PPSP and the home school:

Poor

I got very little information from home school about activities.

Home school forgot us, don't put in home school.

Communication is important.

Fine credits and grades work out. No other contact was present.

Should be better, but can't, should be set up separately.

It was fair, not good. Separate from home school.

Mine is bad. There was no communication until I started relaying messages back and forth.

Our home school forgot about us. (Oak Hills)

E[illegible]curricular Activities

I[illegible]as hard to get back in time.

I'm not in any because of the time. Northeastern is out at two and I don't return until three so all meetings are over.

I wasn't in any.

(Don't know)

Lost interest in home schools-home schools. Home schools lose interest in "Vocational" students.

We didn't have them but it would be good if we could have.

We couldn't get involved.

None

Bad, no communication

F. Academic program: integration with field experiences

All the courses entwined with the field experience

Our experience was related to school work.

It should be integrated. Ours is somewhat.

Pretty good

Good; not always possible.

We worked what we were doing well with what we learned at school.

Interrelated somewhat but mainly to give (sic).

Once a week on this would be fine.

O.K.

Integration of academic subjects (i.e., math with science) toward occupational choice

Most science classes were combined.

Science was pointed toward pet health and people health just as science, government, English

That would help a lot. Ours again is related somewhat.

Pretty good; many academic subjects are useless but are needed for college.

Good as possible

If we couldn't see a connection we were told of it.

Most sciences went together well; English didn't.

Good--make more information on occupational choices.

Fairly good

How does the amount and level of learning you derived from the PPSP compare with what you anticipated?

I learned more than I thought I would.

Beautifully. I learned more the past 1 1/2 years than all the time at CNE.

I learned a lot more only because it was what I was interested in.

Nowhere near as much academically but much more than I expected non-academically.

Learned more than in regular school

We learned what we were interested in because we asked for it, so we got what we expected.

I didn't know what I would get to begin with, but I learned more than I ever would have dreamed of.

I learned a lot more than I thought through my field experiences.

Somewhat less than what I expected

With what you would have expected at your home school?

I wouldn't have learned anything at Oak Hills because most of the teachers didn't care about the students.

CNE will never match this education!

The same thing I've had in grades 7-10. That type of schooling never changes. I would learn a subject, and not have to relate it to other things.

Same as other question (Nowhere near as much academically but much more than I expected non-academically)

I learned more because I cared.

I wanted to get my diploma to go to college so I earned credits. I did learn what I was interested in but I couldn't ask for it.

I got next to nothing out of my home school.

I would have learned nothing at my home school.

A more personal program at PPSP.

G. Concept of PPSP: separation of students according to occupational interests

I think this really helps the students because class can be focused on one general thing.

Good because engineers don't care about health careers and vice versa.

Like it is now. Health students together, engineering together.

Important

Needed in all areas except English--can still be applied

People that wanted to go into the health field need basically the same things for college and can hold conversations and ask questions about the same region of interest.

I feel if a student is studying what they are interested in, they will learn more and be more interested.

Bad idea. Keep them as close to home as possible.

It lets the students see other people and they seem "special" rather than home school students (sic)

Field experiences

They were great.

Careers should be separated according to interest.

Students should try different fields as in health. Like nursing--mental, pediatrics.

Very important

Needed are varied experiences in area.

We should get our interests (sic)

I have gotten a lot out of these and wish others could get it also.

You have to separate them according to occupational interests.

The experiences were good and add to students' concept of health care.

Integration of academic and vocational information and skills:

Most of what was learned was learned in class and in field experience.

Seeing is believing and is better than just studying, but we still need books to learn from.

That was a good experience. It should be done.

Important

Good--some things must be learned on the job.

Good

You need both.

(no comment)

This is an important part of the program.

Best location or type of school for PPSP:

Either in the home school or close to the home school.

If possible, it should be in an altogether different building, but vocational school will do.

Like a vocational school. Located in central area around several schools.

Home schools

In vocational or more vocationally-oriented schools

All I know is that our open concept was great.

In a free atmosphere. Open place and a place that will bend to changes.

Somewhere close to home so not much traveling is involved.

Open concept. Excellent facilities.

Which of the above was responsible for your decision to be in the PPSP?

The field experience. I found out I couldn't be a nurse.

I wanted to try on a health career before entering college and maybe wasting my money and time.

All of the above, especially field experiences and the first one (separation of students). The third (type of school) was a good reason also.

None. I didn't feel I was getting what I needed from the bad chemistry teacher at my home school, so I changed in hopes of a better teacher.

Interest in all that was to be offered to me. A more meaningful environment.

Occupational interest

I was getting nothing out of my home school.

Getting into what I want to do.

Integration from school and from routine school curriculum (sic)

For what other reasons did you choose the PPSP?

I was sick of Oak Hills and decided this would be better.

To get away from traditional high school atmosphere into freer situation. More learning and experience.

Because it was what I was interested in.

It sounded like a good program, I liked the vocationally integrated with academics idea of education.

Dislike of own school, no-where school curriculum.

I wanted to be a Medical Lab Technician and this was a chance to get a jump on "doing".

I've always been interested in nursing.

Get out of Mariemont High School system

I became interested in health careers during a hospital stay, this seemed a perfect program.

INSTRUMENT K PENTA STUDENT COMMENTS

STUDENT QUESTIONNAIRE

A. Selection of students: academic ability

Should be above average including subjects related (sciences).

Very high ability and interest in science and high ability in math grade averages and aptitude tests.

The students should have the basic sciences and math (biology and geometry) with a high ability for both.

2.6 or above

High cumulative average, with a wide range of extra-curricular interests

Recognize that academic ability might not show through due to non-competition, take a high level--85% and medium level--75%

I feel academic ability should be very high; preferably a testing procedure

This is important, however, not as important as motivation. The students must be above average as determined by standardized tests.

Vocational interests

Should be related such as all medical careers

Anything in the general area of medicine

The students should be interested in the field of the PPSP such as health.

Health field

Should have potential and ambition to become a member of a health career

Health generally

A wide spectrum of interest where they would be able to experience different fields

Limited to one general field--i.e., medicine, business, engineering, etc.

What was right or wrong with your PPSP's method of selection?

It was pretty good, except I don't believe anyone even had much opportunity to apply because only a small paper had an article which many probably didn't see.

One student was not a junior and slowed down the class due to lack of background.

Wrong--they selected a student a grade behind the rest which held the rest of the students back.

Worked all right

Good selection

I think the administrators did a very good job of selection.

Wrong--not high enough academic ability

Not as strict as it should have been--some of us should not be in this program.

How would you locate and inform potential students?

Go into the high schools and explain to the counselors the objectives of the program. Then the counselor can "screen" potential students who may be interested.

Inform guidance offices, newspaper articles, announcements at schools to locate, call students for interviews to inform, and discussions.

The high schools in the general area--give briefing of the program.

Inform high school counselors and set up an instructor for students.

Through the school newspaper or announcements

Inform by counselors and then contact potential students individually

I would set up a talk and tour of the program at each high school.

Announce program at end of sophomore year in school, conduct talks and tours of facilities. Have prospective students talk to previous PPSP students.

B. Selection of teachers: academic background

Should have a high level of academic background and be an experienced teacher. This will help in the understanding and answering of questions of the students. The teacher must be interested in the program and the interests of the students to insure success.

Interest in the program and interest in students--teacher of the month, etc. at school.

Interest in our area of study, should have a good academic background with variations

Should have interest in the program. Be able to relate to students

Has proven through previous records that has ability to present information adequately, and with interest.

Have the teacher as interested in the kids as the kids in the program, masters level with a fair amount of experience in teaching and other jobs.

A good academic record with achievement

Interest in students as well as having a fairly high degree in related field such as science (for a health program).

vocational background

Doesn't require the teacher to have once been a doctor (M.D.), nurse, lab technician, etc.

May be helpful to have someone previously working in health field

Should be active in health field

Have experiences within his field--not necessary to have always been a teacher

Should have had fair amount of experience with subject matter.

Have as much experience in general field as possible.

I feel the teacher should have been engaged in the profession or equivalent to the subject in which they applied the material they are teaching.

Should not have always been a teacher, but instead have to had worked on various related jobs.

What was right or wrong with your PPSP's method of teacher selection?

The teachers were qualified, but all weren't completely interested or knew what was expected of them.

Social science and English teachers were not interested and did a poor job.

Our science teacher was fantastic! Need improvement--they should try and get the best, not the most available.

No faults with teacher selection

Did not consider the ability of the teacher to express their ideas to the students in an interesting way.

Some teachers were forced into being our teachers; our English teacher's vocational background made no difference, he's still bad.

I feel the teacher should have been engaged in the profession or equivalent to the subject in which they applied the material they are teaching.

Our selection was along the line of "OK, who has enough free time to teach this class?" I feel we need more interested teachers than we have.

C. Selection of materials and texts:

A person of high academic background and experience in the health field should take time and examine various texts on the same topic and make a list of what will probably be needed.

Chemistry, biology, anatomy, and physics books are most essential--English and social studies important.

Books that are going to relate directly to what is being taught. Materials that will be used over and over such as disecting equipment, microscopes, and health equipment.

Books, related materials, and lab equipment

Should offer challenge, presented interestingly, and not too advanced

Many periodicals on everything, books (science, nursing manuals, doctor manuals), math books.

C. Selection of materials and texts (cont.)

Books and materials--the material for the health program should have priority over the other classes.

All texts leaning towards the areas involved.

What was right or wrong with your PPSP's selection?

Our books and equipment were great, but some courses didn't have books.

No English and social science textbooks

Money for books wasn't shared equally. Some classes had books, others didn't.

The selection was fine but the materials usually arrived late (no fault of teachers).

Too hard a text in math

There was some wrong distribution of money for books.

Great materials

The materials were great, however, we needed more time to spend with each piece.

D. Organization of PPSP: transportation

Was great for Owen's classes and most field experiences had a van and driver available.

Penta buses worked well for us

Our transportation was there when needed.

(no comment)

Organized--special bus to pick up students

To class by bus--field experience--reliable transportation by bus

(no comment)

Was fine in our case, however, we needed longer days for field trips.

Class scheduling

Required the ten of us together throughout the day which was good in that we could discuss other classes and help each other to understand more fully.

All in same classes

Same class--helpful to each other

Size of group would make a difference--with a small class and could be better to keep the class together. Personality clashes would be a problem.

(no comment)

Science classes mixed together, different kids in different classes (English, one group; Science, another group)

The major class in which the program was oriented should have had the most time.

Was fine in our case, have science courses back to back followed by math with the least amount of time spent on irrelevant required courses.

Choice of field experiences

Should be planned to give us more knowledge of different fields of health than just a quick tour.

Someone in health field should choose--some group tours and some volunteer work would be best experiences

A health person should set them up. Students should give suggestions on what they are interested in.

Field experiences should coordinate with class work.

Should have adequate preparation and placement service to accordingly place students in interest areas (i.e., Ann Arbor--good)

Museums, electron microscope, x-ray technology, hospital experiences

The field experience should be dealt with in a manner in which each student would have individual counseling about the choice of field experience.

Group field trips rather than individual trips, all related to a field of study.

What was right or wrong with your PPSP's organization?

Was organized about 50% of the time meaning that some field trips weren't the best and some classes tended not to be organized.

No field trips were planned for some weeks--the coordinator didn't have enough time or effort to do a good job.

Field experiences need more work.

(no comment)

Not organized enough--too little scheduling

I like my individual field experience at Planned Parenthood, but have more coordinated by a medical person.

(no comment)

No problems

E. Coordination between the PPSP and the home school

Same problems as with vocational schools, more communication needed

Was very poor. Often important announcements were made a day late causing problems for us and Penta County Vocational students. Home school should push to get all important messages to someone who would pass them on to the students.

(no comment)

Should have open line so we will know what is going on.

Students should know what's going on at their home high school and vice versa.

(no comment)

An announcement sheet should be sent from each school.

No coordination

Extracurricular activities

Should be scheduled to allow Penta students plenty of time to get to location to participate and to keep in touch about meetings.

Extracurricular activities (cont.)

Students should be informed of extracurricular activities so they can have the chance to participate.

Missed out on knowing when activities were taking place at home school

(no comment)

Set up schedule at Owens Tech--intramural co-ed physical education program

I don't know

Need more contact with students for information

None in our case, however, we feel it is necessary.

Guidance and information

Is definitely needed and was poor

Guidance counselors should be contacted directly if students need help or information to set up appointments.

Home schools have forgotten where we are. Should let us know what is happening.

Personal guidance should be given to each student.

Should have announcements from high school sent to college.

A special counselor for the PPSP kids

Very poor

Need counselors acquainted with the program

What was right or wrong with the coordination between your PPSP and your home school?

Everything was wrong; we were to get messages from either Penta or home on early dismissals, dates to pay graduation fees, etc., but often never did.

I didn't even know when I was graduating until a couple of weeks before.

The home schools should have let us know about scholarships and awards.

There wasn't any

What was right or wrong with the coordination between your PPSP and your home school? (cont.)

There was no attempt made to communicate with the home school.

Bad coordination between my principal and my administrator (never talked).

Not enough

There was very little at all.

F. Academic program: integration with field experiences

Not all experiences were as closely integrated as others and some required more time.

The field experience coordinator and the science teacher should meet every week to arrange field trips.

Our teachers should let the field experience people know what we are doing in class to interrelate the two.

Field experiences should be integrated with the class work. Teachers should consult one another and find a practical experience.

Individual interests should be considered.

Have nurse coordinator promote program so more opportunities would be available and people would know our skills and interests.

More integration with class

Very necessary

Integration of academic subjects toward occupational choice:

Most of the time even if the teacher hadn't planned it, we were aware of the integration of math with science which is important.

Very important. Constant integration is not necessary but students should be aware of the relationship between subjects and occupation.

The science and math should try to go at the same pace--also with physics because math is used a lot.

Integration of academic subjects toward occupational choice: (cont.)

Due to absorption of different materials, integration is hard.

Individual interests should be considered.

Too much integration may hinder PPSP programs. Kids who drop out might be lost.

Math and science--yes; English and government--no.

Necessary; however, at times it was impossible.

How does the amount and level of learning you derived from the PPSP compare with what you anticipated?

I believe it was much better than what home schools offered and will help me "breeze" through future classes (college level).

It was what I anticipated.

I expected higher than normal and on the whole I received it.

It's what I had anticipated.

I expected more out of field experiences than was offered.

It was comparatively the same.

About equivalent

Just about the same--more advanced than home high school

With what you would have expected at your home school?

Home school was so much more general and formal with inadequate equipment.

(No comment)

It was much higher than home school.

(No comment)

Nil

It was much higher.

Better

As I said, it was more advanced and more in depth.

G. Concepts of PPSP: separation of students according to occupational interests

Very important; however general fields of study should be grouped together.

Good if the interests would have been more thought about.

This is essential to be separated in a high school but maybe held within the high school.

Good idea-does not waste time with areas that bore the student.

It's the best way because we all have basically the same.

Students should be separate for science classes and field experiences-others could be regular high school courses.

Should be done but they can be kept in high school if equipment is available or can be made available.

Field Experiences

Grave overall view of health professions and only with all health oriented students would work out. A large number can cause problems.

Good idea.

O.K. if more planned.

Should be separated too.

Good idea, but must be scrutinizingly observed.

(no comment)

Are essential to see what is happening in the health field.

Are essential but not possible in a regular high school program.

Best location or type of school for PPSP

(No comment)

This is essential also.

(No comment)

Good idea.

(No comment)

Very good but could use coordination.

Hard to accomplish, however it is a good idea.

(No comment)

Best location or type of school for PPSP

A location which is close for all members and possible to go places outside of classes or live near enough to study together. The school should have facilities and equipment that is essential.

Hard to accomplish, however it is a good idea.

At a college with facilities.

In a college or high school.

Centrally located-ours was an ideal location.

Depends on the months and maturity of students.

Where all students can get there without trouble.

A school that has transportation and good facilities(chemistry, biology, physics labs)

Which of the above was responsible for your decision to be in the PPSP

I liked the idea of field trips and studies directed more towards the field I'm interested in.

There wasn't just one thing, they all were responsible.

Intergration of academic and vocational information.

Vocational information.

To future my education, to challenge me, and to get out of my high school.

The science and math inter-related and oriented to the Health field.

A combination of all, especially the integration of classes and field trips.

(no comment)

For what other reasons did you choose the PPSP?

(no comment)

The challenge.

I felt I could further and better my education and life.

(No comment)

Had individuals persueing same interests- could relate to others better.

I was interested in the health field.

(No comment)

APPENDIX L

INSTRUMENT G

Program Organization and Teaching Concept Questionnaire

1. Which program are you in?

___ Health ___ Business Administration ___ Engineering ___ Social Science

2. Indicate your role in the program.

___ Parent ___ Student ___ Teacher ___ Administration

3. For each facet of the program listed on the next page, place a check mark to indicate how often it was part of the program and how important it was to the success of the program. You may add items at the bottom if you wish.

Answer the following questions in your own words. Use the back of the paper if necessary.

I. What do you consider to be the most positive features of the program?

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II. What do you consider to be the weakest features of the program.

____

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Item	Percent of time item was included in program						Im to P	
	0%	25%	50%	75%	100%		Essential	Im ta
Students spend about 4½ hours each day with the teacher in their program		▨	▨	▨				
Students' classwork is combined with activities that are similar to those of professionals in their field								
Students are allowed to work at their own speed								
Students visit places where people do the kinds of work the students are interested in								
Students work on classwork and activities that meet their particular needs, interests, and career goals.								
Academic knowledge is applied to the student's career area								

	Percent of time item was included in program					Importance of item to Program's success				
	0%	25%	50%	75%	100%	Essential	Impor-tant	Take it or leave it	Unimpor-tant	Unnec sa
with the		▨	▨	▨						
ctivities nals in										
wn										
he kinds										
s that and										
dent's										

III. Do you have any changes you would like to see made in the program?

____

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____

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IV. Give any other comments, suggestions, criticisms you might have.

____

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V. Overall, how successful would you rate the Pre-Postsecondary program?

_____ Very Successful
_____ Successful
_____ Somewhat Successful
_____ Midly Successful
_____ Not Successful

INSTRUMENT G

Student Comments of Firestone Students Interviewed at Firestone High School

I. What do you consider to be the most positive features of the program?

It was an experience as far as some association with the career is concerned.

Freedom of courses--opportunity to visit occupations

Career exploration

Students have a chance to see first-hand the careers they are interested in.

The field experiences--the higher academic program.

Relaxed atmosphere--greater independence

II. What do you consider to be the weakest features of the program?

It did not give us a strong enough academic or scholastic base.

Lack of organization and rapport with classes outside of program to the program (English, history)

Academic preparation for college

Answered in III and IV

Individual work and interests

Too much of a relaxed atmosphere, too much independence

III. Do you have any changes you would like to see made in the program?

More detail in physics and chemistry and much more accelerated.

More unified, organized. Some people have such different classes that you never see them; I suggest meetings once a week to discuss what's going on overall. Also it will give a sense of "oneness"

Better academic program--better outside experiences

Enthused teachers--students who are mature and independent--academic courses--a program of possible field experiences arranged particularly for a student in this program.

The first year general field experiences. The second year should be more individual and regular field work.

Greater discipline--more organization--student should have more priority to visit doctors--instructors are able to see students.

IV. Give any other comments, suggestions, criticisms you might have:

Courses MUST be as good or better than those given to other students not in the program.

In the two-year basic math and sciences are needed, especially first year. But with four periods a day, the second year could be spent with more outside work. Part of the last six weeks of school could be held like senior seminar with each student giving a complete resume of his year's activities.

More long-range projects but make supplies and equipment available for type of experiment needed.

Student Comments of Firestone PPSP Students Interviewed at the Workshop

I. What do you consider to be the most positive features of the program?

The most positive feature of the program was the Science department. The Advanced biology being the most successful.

I think the most positive features were (a) being able to get advanced Biology, (b) exposure to health fields (last year)

I got a better education by going to Firestone than my regular school.

Visiting professionally related fields

The varied activities made it interesting. These included parisitology, anatomy, and immunology. Also, the many field trips and travels added greatly to my knowledge

The most positive feature is that it's helped me to decide that nusing is what I really want to do.

Using all means of the program to help direct me to one goal I want most.

Pointing you towards a certain vocation.

Students working in field experience and at their own rate--blocked time period is great

I got a good biology background for college. The exposure to the different health careers was good.

Good biology background.

II. What do you consider to be the weakest features of the program.

The weakest features of the program consisted in the math department Not as individualized has it could have been. No work experience.

Physics teaching, lack of career guidance and experience

Math class terribly inadequate

Lack of contact with others in school. Academically poor--lack of seriousness between students about program.

Our program allowed a little too much freedom and some took advantage of this. As far as weak points, I thought the program was very well rounded.

The math in our program has been poor. Some students have taken their math outside of the program; these people have not lost anything. But, I feel that the people who have taken the math in the program lost a lot.

II. Weakest features (cont.)

After a while of field trips and speakers, we heard and saw all there was to see and hear.

Being grouped with one group of people for most of the day.

None

Math

Math program and whole thing is purely academic work.

III. Do you have any changes you would like to see made in the program?

I would like to see it more individualized and also would like to have more outside work (volunteer).

Arrange concrete field experiences, i.e., jobs. Get Biochemistry.

More outside experience, more individual work--better math background, have chemistry teacher in the program instead of having to go to regular class.

A more serious atmosphere. A better academic program. An academic program which is more medically related.

I think that there should be a more individualized program where each person is put into a different experience and learns from these jobs.

A better math program. They should have two teachers--one for math and one for science.

No, I feel that at our age in High School we could not have done any more.

More field experience--more emphasis on academic related to your interests.

Need more outside experience. The academic background was pretty good, but we should be out in the field more.

More outside experiences. Working in the field--less straight academic work.

IV. Give any comments, suggestions, criticisms you might have.

I believe the program will work if it is given a chance. As this is the first type program, it will need some ironing out.

Get another teacher for physics and math--how about a physics lab?

Have teachers who are open to the students and ready to accept new ideas. Make sure they understand it will take a lot of time to do a good job as a teacher.

Fewer people in class--a more intimate atmosphere

Need longer and more experiences. Courses that are better for work not much college prep.

INSTUMENT G PENTA STUDENTS' COMMENTS

PROGRAM ORGANIZATION AND TEACHING CONCEPT QUESTIONAIRE

1. What do you consider to be the most positive features of the program?

Science and mathematics courses, which had outstanding features such as good teachers, adequate laboratory experience, and a degree of challege.

The most positive feature of the program was our science classes. I feel I have learnt more in the past two years in science than I would have learnt in all my high school years at my home high school.

Our science teacher and the work we have done in chemistry, biology, physics and anatomy were excellent. Working at the Sunshine Children's Home is one of the most valuable things I've ever done.

Small group, interest oriented, good teachers interested in us, the time spent together as well as the time we spent studying.

Classes were directed toward our area of interest.

The Science and Math courses.

The natural science facet was the strongest facet because not only was it the main objective we also had a great time. We used many different types of interesting equipment. The most valuable experience was my field work.

The field experiences and out science courses, Biology, Chemistry, Anatomy and Physiology, and Physics.

11. What do you consider to be the weakest features of the program?

Liberal arts courses such as english, and political science, which were both boring and badly prepared.

The social science classes were the weakest. They did not holdmy interest to any certain lengths of time.

Our English and Social Science classes have been poor both years. I feel they were much inferior to the ones at my home school.

Failing interest among the administation.

English, Political Science and coodination between administration.

Our english program the teacher was not very good.

Both years of English and Social Sciences. The second year English first semester which consisted of technical writing was great, but the second semester lacked.

111. Do you have any changes you would like to see made in the program?

Better selection of social science teachers and math teachers. Some of the teachers we had were not capable of stimulating or maintaining even a minimum amount of interest.

The English and Social Science classes need improvement.

The English and Social Science classes need improvement-especially the instructors.

More students, more frequent meetings with the other PPSP groups, teachers and administrators more interested in the students, more h lp with the field experiences on the part of the administrators.

Physic in the first year and Chemistry in the second year. More time per day for subjects.

Have a recreation program planned in and also use more than one classroom.

A better English and possibly more history than just discussions on present events.

1V. Give any comments, suggestion, critisms you might have.

Disciplinary problems arose from too much laziness on teacher's part to enforce decent behavior.

We would have liked to have more group field trips the second year.

The one reason why I think the PPSP program was a success is our science teacher Mr. Siekeres. He took such an active interest in us and what we were trying to do. He's the greatest!

Mr Siekeres made the program more valuable than any other instructor. He was great! Another thing that helped was the fact that we are a very close group, and things are more fun with friends.

INSTRUMENT G SCARLET OAKS STUDENTS' COMMENTS

I. What do you consider to be the most positive features of the program?

Mrs. Miller. All the optomistic attitudes. Open communication between students. Our experience placements.

Mrs. Miller--because she was always behind us, pulling us through. She's a fantastic person. Also the students and Mrs. Miller have become one big family.

Mrs. Miller--the way everything was presented. Also the openess of the program. Plus on the whole the kids in the class are fantastic.

The experience at the hosptials and the openess of the classroom.

Our career experiences working as volunteers helps a lot. The communication between our teacher and students. We can say what we feel like and do things not allowed in our home school. This makes us more relaxed and it's not an uncomfortable situation. Our teacher knows us well and can help us in any problems. We are not rushed by a bell and can take our time to learn until everybody understands. Working as a volunteer helped me decide what career was best for me.

The teacher and students get along well--we can communicate to her what we are interested in and she tells us what we need to be ready for further education. She is great.

Students feel like there is a reason for what they learn. They don't feel as if they are idiots being programmed by the "system". We feel more like real people in a real world.

Our teacher (Mrs. Miller) is one of the best things in this class. All the openess between the students and to study the field I am interested in.

II. What do you consider to be the weakest features of the program.

The distance from school to my house.

The distance from school to my house.

Distance.

The curriculum could have been a little better. Getting up early.

I do not see any weak points.

I do feel that it is too easy a program and has not perhaps trained us adequately for college. This is most likely due to the unorganization of the program.

The school we are in. (Scarlet Oaks).

III. Do you have any changes you would like to see made in the program?

Transfer back to home school.

Bring into public schools.

No.

Other than the physical school, which is 30 miles from home, and more medical type lab is needed.

In our class, more academic subjects. Ex-physics.

The program as it was designed was fine but I would have like to have seen our equipment there when we needed it.

It should be in the home school. Academically it should be harder.

Put in home school.

IV. Give any other comments, suggestions, criticisms you might have.

The program was great. It really changed my outlook toward college.

I have gotten more out of the one and a half years I was in this program than the two and a half years I was at my home school. Mainly because of the way things were presented.

Find a good teacher who can work with kids and treat them like equals, like ours did.

Distance we have to travel. I enjoyed the program and think it should be placed in the home schools.

I know that if this program would go into closer areas we could get rid of our one problem; the ride to and from school.

It would have been successful except that we didn't have any equipment or idea what we were doing the first half year and then this year we spent the first half year trying to get a decent chemistry teacher.

Please keep trying to continue this program.

APPENDIX M

INSTRUMENT P PARENT QUESTIONNAIRE

1. In which program did your son or daughter participate?

Live Oaks ________ Penta ________
Scarlet Oaks ________ Firestone ________

2A. How should students be selected in terms of academic ability? Should all students be academically talented or should there be a range of abilities?

____

____

____

B. How similar should the vocational interests of the students be? For example, should all students have stated that they would like to be a lab technician or would the "field of health" be an appropriate choice? Should students be admitted ONLY if they are very sure of their career choice?

____

____

____

C. How should a program organizer locate and inform potential students in the program?

____

____

____

D. What do you think was right or wrong with the method of selection of students in the PPSP in which your son or daughter was enrolled?

____

____

____

3A. What should be the requisites for teachers in the program? Should they have had previous teaching experience? Should they have an in-depth knowledge of their content area?

____

____

____

B. Is it important that the teachers have had actual experience in a profession related to the central profession choice of the students?

C. What was right or wrong with the actual PPSP's method of selection?

4A. On what basis should materials be chosen for the program? Should they include typical high school materials? College level materials?

B. What field experiences should be included? Where should they occur? What professionals should be involved? How should field experiences be organized?

C. What was right or wrong with the choice of materials and experiences in the actual PPSP?

5A. How should the PPSP be coordinated with the home high school--if the PPSP is conducted at a SEPARATE location? Who should be in charge?

B. How would you insure that PPSP students have an equal opportunity to engage in extracurricular activities?

C. How would you insure that PPSP students have equal opportunity to guidance services and career and scholarship information?

D. What was right or wrong with the coordination between the actual PPSP and your son/daughter's home school?

6A. What kind of academic program would you establish?, same as typical high school? Greater emphasis on career related subjects, all aspects at advanced level? More advanced in career related subject only?

B. How would you integrate the academic program with field experiences?

C. How would you integrate different academic subjects (i.e., math with science, or English with science) in light of students' occupational choice?

D. How does the amount and level of learning your son or daughter derived from the PPSP compare with what you anticipated?

E. How does this learning compare with what you would have expected at his/her home school?

7A. What do you think of the different aspects of the PPSP, such as the basic idea of separating students into a special program because of their occupational interest?

B. What do you think of providing field experiences for PPSP students? For any students?

C. What would be the best location or type of school in which to set up a PPSP?

D. What aspect of the PPSP do you think was responsible for your son or daughter's decision to be in the PPSP?

E. If you had to choose whether to enroll another child in the PPSP for what reasons would you do (or not do) so?

KENT STATE
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BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

June 7, 1975

Dear Mr. and Mrs.

During the last two years, your son or daughter has participated in the Pre-Postsecondary Program. The Bureau of Educational Research is completing an assessment of this program. We would like you to complete and return the enclosed questionnaire. It is possible that programs similar to the Pre-Postsecondary Program will be established in other schools in Ohio. We feel that the thoughts and feelings of parents should be an essential aspect of the planning of such programs. Because of your experience with your son or daughter's Pre-Postsecondary Program, your constructive criticism and/or praise will be very helpful to the planners of similar programs. Your comments on the enclosed questionnaire will be included in the evaluation report which will be sent to the Ohio Department of Education. The people who read this report will also be involved in program planning.

As you complete the questionnaire, imagine that you are in charge of planning and establishing a Pre-Postsecondary Program. In other words, you will decide what sort of students would benefit most, and what sort of teachers would do the best job, what materials you would select, etc. Then, in each section there is a question asking that you assess what actually occurred in your son or daughter's Pre-Postsecondary Program in light of your own choices and plans. If you seriously adopt the role of an educational planner while completing this questionnaire, it will help you provide helpful, far-sighted suggestions.

We realize that this effort will take some time. However, your response to this questionnaire will make a direct contribution to improved education for high school students and we hope you will give of your time for that purpose.

Your individual responses will be kept anonymous; they will be presented only in summarized form for each program.

Thank you very much,

Lillian Buchanan

Lillian Buchanan, Coordinator
Pre-Postsecondary Program Evaluation

2A. How should students be selected in terms of academic ability? Should all students be academically talented or should there be a range of abilities?

Students should be academically talented.

Should generally be selected in terms of academic ability but there should be some placed in the course that have a genuine, enthusiastic desire even though their academic position might be only average.

They should be above-average students.

Students participating should be selected from those having a range of interests and abilities.

The students' desire for a certain field should be most important for then the academic ability will come later.

2B. How similar should the vocational interests of the students be? For example, should all students have stated that they would like to be a lab technician or would the "field of health" be an appropriate choice? Should students be admitted ONLY if they are very sure of their career choice?

Field of health would be an appropriate choice. Students not sure of a career choice should be admitted.

"Very sure" is rather strong, perhaps "quite sure" would be more appropriate.

Field of health, I think, would be all right. I do not think they have to be positive about their career plans. That is what is the purpose of the program--to show them what it will be like.

A generalized interest in a broad field such as "health" or such as "science" should be sufficient. Few high school age students are very sure of their career choice.

Field of health is my choice. How can a student be very sure of their career choice until so many have been explored?

2C. How should a program organizer locate and inform potential students in the program?

Same as before.

First discuss program with all students, then interview interested students individually.

Through recommendation of teachers.

Publicity through public media, written notice through school channels.

Make information public and let students come forward if interested.

2D. What do you think was right or wrong with the method of selection of students in the PPSP in which your son or daughter was enrolled?

I am not qualified to answer this question.

I don't know.

Almost everyone who applied was taken. This slowed down the good students.

(no comment)

It was fine and fair.

3A. What should be the requisites for teachers in the program? Should they have had previous teaching experience? Should they have had varied vocational experience? Should they have an in-depth knowledge of their content area?

The ideal teacher would be one with both qualifications stated above.

(Knowledge of content area) important and teaching experience of a high caliber.

They should have had experience, and they should be the best. Mr. Hunt, who was the regular chemistry teacher at Firestone and who has a reputation for excellently preparing his students for college chemistry (I know because my older child had him) was not the teacher. He should have been. An inferior teacher was brought in and, as a result, these students are not adequately prepared for what they will meet in college.

Teachers should be experienced in their specific area.

However the teachers were selected has my fullest approval as my son had the finest teachers in this program I have ever met.

3B. Is it important that the teachers have had actual experience in a profession related to the central profession choice of the students?

No

Yes

(no comment)

Practical experience in a profession or in industry would be greatly beneficial.

Yes

3C. What was right or wrong with the actual PPSP's method of selection?

It worked out fine for us but I am not sure for everyone.

I don't know PPSP's method.

Too broad.

(no comment)

It had my approval all the way.

4A. On what basis should materials be chosen for the program? Should they include typical high school materials? College level materials?

Both

College level

I think they should be AP level materials. That's why the students should be above average.

Material used must present a challenge to the student. Some college level should be used.

Both

4B. What field experiences should be included? Where should they occur? What professionals should be involved? How should field experiences be organized?

Visits to hospitals and medical schools. Doctors' approval and cooperation if possible. Field experiences organized by the school.

Professional and business people should be invited to participate.

Some but not too many. Our students were reduced to thinking of their whole afternoon as a goof-off.

As many as possible field experiences should be included in the program. Some of them should include social aspects of health (welfare, etc.) Professionals should be in control.

I am sure teachers qualified to teach this type of class would be capable of answering this better than I.

4C. What was right or wrong with the choice of materials and experiences in the actual PPSP?

Not qualified

I don't know

Some experiences were not that valuable. Their field trips should have been limited to 5 or 6 excellent ones.

(no comment)

Not enough involvement with area professionals

5A. How should the PPSP be coordinated with the home high school if the PPSP is conducted at a SEPARATE location? Who should be in charge?

Good question

PPSP should be in charge

I don't think I'm qualified to reply. I would not recommend a separate location--too expensive, for one thing.

The principal of the home high school must make sure the courses are accredited and that the student receives no less than the normal student will get.

The separate location should be in charge completely.

5B. How would you insure that PPSP students have an equal opportunity to engage in extracurricular activities?

I am sure this would not be a difficult problem.

Careful scheduling

Ours did.

Any field work or tours should be flexible--use Saturdays

That would be the student's choice.

5C. How would you insure that PPSP students have equal opportunity to guidance services and career and scholarship information?

Not qualified to answer

Careful scheduling

(no comment)

Should be included in each student's weekly schedule.

Through the school counselors

5D. What was right or wrong with the coordination between the actual PPSP and your son/daughter's home school?

Since this is my daughter's home school, we had no problems.

I don't know

(no comment)

Firestone was the home school

The home school was very uninformed. They were not even sure of the classes which were available at Firestone.

6A. What kind of academic program would you establish? Same as typical high school? Greater emphasis on career related subjects, all aspects at advanced level? More advanced in career related subjects only?

All aspects at advanced level

Greater emphasis on career related subjects, all aspects at advanced level.

I would not recommend a separate school.

Academic program should be same as a typical high school with more advanced subjects being in the career subject.

Greater emphasis on career related subjects.

6B. How would you integrate the academic program with field experiences?

(no comment)

Have same professionals for both

The teacher would be the best judge. He would draw on resources of parents who have positions of influence. For instance, my husband is a ob-gyn man. He made it possible for three students to witness a delivery and a caesarian section.

Schedule a given number of field experiences per school year--utilize Saturdays if necessary.

Show all you can as you go. Example--study of blood, go to a hospital and see it done--follow through.

6C. How would you integrate different academic subjects (i.e., math with science, or English with science) in light of students' occupational choice?

Not qualified to answer

(no comment)

I am not qualified

English, technical report writing, speech and communications should be integrated with a science program.

More advanced study in subjects related to field of choice

6D. How does the amount and level of learning your son or daughter derived from the PPSP compare with what you anticipated?

(no comment)

I anticipated a tougher, more challenging program than was had.

It fell very, very short of our expectations. The most important thing was that the teacher was inferior. The same teacher cannot teach two subjects well unless he has the training. Our teacher was a chemistry teacher--not first class--who was also trying to teach math.

The interest expressed at the start was reduced by the knowledge that the program would be terminated at Firestone.

Very satisfactory

6E. How does this learning compare with what you would have expected at his/her home school?

About the same

The main advantage is the increased interest that was generated in the student compared with the regular schooling.

As I said earlier, my son would have had an excellent chemistry teacher in the regular program. He missed this opportunity.

(no comment)

Far superior

7A. What do you think of the different aspects of the PPSP, such as the basic idea of separating students into a special program because of their occupational interest?

Separating students into special programs does not hold back the faster learning but it also makes the range of acquaintances smaller.

(Separating students) is a good approach. This eliminates a lot of distractions and generates interest and enthusiasm.

If our experience was typical, I would say DROP IT.

Separating students into groups according to career interest allows those with common interests to learn from each other.

Very favorable, sooner or later they have to be on their own and make decisions on their own.

7B. What do you think of providing field experiences for PPSP students? For any students?

Field experiences are very good for all students depending on whether they will gain something from it.

The more field experiences in schooling, the better. It works well in industry, I believe it should work well in education if the field trips are well planned and organized.

Good idea if not overdone.

Field experiences are good and should be increased.

The world is very competitive and I feel the student should see the good and the bad which can only come from observation.

7C. What would be the best location or type of school in which to set up a PPSP?

A school where students are academically qualified and interests are definitely along these areas.

Central location of a school district (Akron schools).

(no comment)

(no comment)

This is unimportant. Just so we have such a school; the location does not matter.

7D. What aspect of the PPSP do you think was responsible for your son or daughter's decision to be in the PPSP?

A higher level of learning

The opportunity to study something outside the regular school program in a particular field of interest.

We thought it would give him excellent background for pre-medical programs. It did not.

(no comment)

His desire and the interest from the educators who selected him at his interview.

7E. If you had to choose whether to enroll another child in the PPSP for what reasons would you do (or not do) so?

I would only if they are academically qualified.

Yes

NEVER AGAIN. I have already explained why.

(no comment)

I would enroll another child in the PPSP as I feel our son had far more interest in school after he went to Firestone. The teachers and the counselor he had were far superior.

INSTRUMENT P--PENTA PARENTS" COMMENTS

2A. How should students be selected in terms of academic ability? Should all students be academically talented or should there be a range of abilities?

Quick learners are necessary in an accelerated program. Also, they must be willing to give up Marching Band, etc.

Students should be of average or above ability with prerequisite course standards.

They should be selected for their academical standing and abilities.

I think all students should be academically oriented. There may be of course some deviation, but within a rather narrow range.

The students don't have to be all superior IQed but should have possible college potential.

Selection for a medical or allied health career should be based on high school faculty approval and student scholarship (upper third, etc.) and student desire. All students should be academically talented.

2B. How similar should the vocational interests of the students be? For example, should all students have stated that they would like to be a lab technician or would the "field of health" be an appropriate choice? Should students be admitted ONLY if they are very sure of their career choice?

Students should not be "sure". They need a chance to learn about opportunities. A career choice is difficult and very important.

Field of health would be appropriate. No, the student need not state a definite career choice.

"Field of health" is an appropriate choice. No, students who are willing to do the work, to whom the work is a challenge, should be admitted.

"Field of health" or like general interest area----Undecided or questioning students are an asset.

The students should know their career choice mainly because the PPSP is limited to a certain number of students.

No, but they should be interested in science. At that stage, they often know too little about all the probabilities of work in the health service to be able to make a choice.

2C. How should a program organizer locate and inform potential students in the program?

Many schools have science clubs, etc. These could be contacted--also hospitals have candy stripers who might be interested as well as school personnel.

The area newspapers are a good media. Also the school guidance counselor should be notified before the summer recess. Our particular counselor did not know anything about the program until a parent brought it to his attention.

Through the school counselor, I suppose. Although in our small town, my daughter seemed to be the only one who knew about it.

Through all local schools--in our area no effort was made to contact Toledo schools because of the tax structure of Penta.

The home schools should be visited and a program be given showing the students the advantages of a PPSP.

Through the local high schools, as well as advertising in the newspaper.

2D. What do you think was right or wrong with the method of selection of students in the PPSP in which your son or daughter was enrolled?

I know very little about the method. My daughter saw it in the newspaper and we went to Penta.

The selection was fine as far as I know. I only wish that more students had taken advantage of this wonderful program. Perhaps 25 would have been better than a class of only 11 students.

I'm not in a position to say. I was surprised that the class was so small. However, a better teacher-student relationship should result in a small class.

Not publicized enough in home area.

It was just, but the numbers of students should be increased because half of the students dropped out.

Interviewing all prospective students was, I think, the right method used.

3A. What should be the requisites for teachers in the program? Should they have had previous teaching experience? Should they have an in-depth knowledge of their content area?

Our group had mostly college instructors--this seemed to be satisfactory as the class was small.

They probably should have a master's degree but definitely should be interested in the content area and definitely should be experienced teachers with excellent references. Our program had a very good retired professor. The teacher should be able to stimulate the student.

Yes, teachers should have had previous teaching experience; possibly they get this now in "student teaching" while in college. They have to be very bright themselves to teach these youngsters.

Best teachers available.

They should have both types of experience.

By all means. They have to be well-versed in their subject as well as effective. As to the previous teaching experience--I think it is very useful, but some talented beginning teachers may do quite well.

3B. Is it important that the teachers have had actual experience in a profession related to the central profession choice of the students?

The program as we had it was to give the students a medically oriented curriculum but the observation and work during field trips was the only real contact necessary with medical personnel.

No, not many teachers have been doctors or dentists or lab technicians.

I don't think so. A good, dedicated teacher can teach any subject he or she has previously prepared.

No

Yes

Not necessarily. But they should be pretty well acquainted with the field and have a general idea about its possibilities.

3C. What was right or wrong with the actual PPSP's method of selection?

I'm not sure what the "method of selection" was.

The number of students should be increased in ratio to the teacher's work load.

Not enough publicity soon enough.

No comment

Apparently nothing was wrong, since most students finished with quite good grades and are planning careers in fields related to medicine.

I can't answer this question.

4A. On what basis should materials be chosen for the program? Should they include typical high school materials? College level materials?

Our students had high school and probably some college material. It would depend on what the students could absorb.

They should cover the high school level along with a touch of college level materials.

The program for academically talented students should include advanced high school material plus college level materials.

I cannot answer this.

Combination.

They should include perhaps easy college level materials which have much more to offer than typical high school texts.

4B. What field experiences should be included? Where should they occur? What professionals should be involved? How should field experiences be organized?

The first year should be as much varied observation as possible covering all aspects of medicine. Then each student should narrow her interests to three or less and try for more contact with these areas.

They should cover a broad range of subjects.

One day a week, as the class my daughter attended did, gave her insight into the medical profession no classroom could.

Professional and business people should be invited to participate.

Each student should be exposed to every career field he has some interest in. He should be able to spend a day with a good MD or DVM or RD, if he desires. This experience should occur on the job. All professionals in the allied health field should be involved. The students may not even know that some of these careers exist or what they are unless they are exposed to them or given first-hand information.

As varied as possible but of interest to the students.

4C. What was right or wrong with the choice of materials and experiences in the actual PPSP?

I cannot judge this.

Actual professional medical people do not have time or opportunities for such young people to do much work. But the young student can discover what the profession actually is and if they would like such work.

The choice was fair and reasonable.

Am in no position to comment on this.

The program director should make the arrangements or the instructor should. Perhaps more professionals could have been included (I know they are very busy). Our son had some very excellent experiences and decided that he wanted to try child psychology after working with retarded and handicapped children as part of his field experience one day per week his last year. He worked with a very good young man in this field. The program PPSP should have observed or checked these students on this experience day and evaluated them.

Field experience was good the first year, second year more field experiences.

5A. How should the PPSP be coordinated with the home high school--if the PPSP is conducted at a SEPARATE location? Who should be in charge?

Our daughter seemed to lose contact with the high school--perhaps her own fault. Cannot feel qualified to decide.

The home schools should have a teacher other than the regular counselor or advisor.

No comment.

The principal of the home high school must make sure the courses are accredited and that the student receives no less than the normal student will get.

More feedback from PPSP.

Communications were very poor for our son. He participated in sports and so he learned a little about activities at the school from the other athletes. A newsletter to the students at the PPSP from the high school guidance counselor stating a definite calendar would help. We never knew about graduation commencements, prom pictures for the annual, National Honor Society assembly, etc. The PPSP and high school guidance counselor should communicate and inform the students of messages immediately.

I am not acquainted with the problems of school administration. Logically, if the program is conducted at a separate location, there should be a coordinator other than the high school principal.

5B. How would you insure that PPSP students have an equal opportunity to engage in extracurricular activities?

No comment.

Be more informed of activities.

Maybe by the use of their personal teacher representative at their home school.

Better communication between the PPSP and the schools.

Our son had no problem. He participated in baseball and was excused early when necessary. During the winter, he coached an elementary basketball team at the home school system.

It did not seem to be a problem.

5C. How would you insure that PPSP students have equal opportunity to guidance services and career and scholarship information?

Through their own student counselor from their home high school.

PPSP personnel should assume this responsibility.

I think that if they had use of a personal teacher representative, they gain a lot of help.

Make appointments for each student with a counselor at their home school.

Be sure that he talks with the high school guidance counselor often and has a good relationship with him or her.

It is up to the home high school administration to provide the information to all students, whether they participate in special programs or not.

5D. What was right or wrong with the coordination between the actual PPSP and your son/daughter's home school?

No comment.

The home school did not recognize the daily needs of students for identity.

They lost some contact and help by being separated from the home school.

Our daughter was the only PPSP from her school. We felt the communication was not too good but again this is probably her fault in part.

Some messages were not relayed soon enough from the PPSP office to students for the students to take advantage of. Since our school only had two students involved in this program, I believe the high school counselor or office could have called the home to relay some messages/announcements.

As far as I know, nothing was wrong. But if there was, how would I know?

6A. What kind of academic program would you establish? Same as typical high school? Greater emphasis on career related subjects, all aspects at advanced level? More advanced in career related subjects only?

No comment.

Same (as it was).

An emphasis on career related subjects at a level between high school and college level.

More emphasis on career related subjects seems important.

Greater emphasis on career related subjects, all aspects at advanced levels.

Definitely, with a greater emphasis on career-related subjects. It would make no sense to duplicate high school offerings.

6B. How would you integrate the academic program with field experiences?

I think an excellent job was done at Owens Technical School, Perrysburg, Ohio.

Same (as it was).

They should blend together with the course.

They would probably have to be separate to some extent.

The same as this program . . . one day a week for experience. I think each student should be guided in his choice of experience and have school approval of selection. This should be a learning experience and not a free day.

I think it was very well integrated at the Penta program: most of the time one day of field experience a week.

6C. How would you integrate different academic subjects (i.e., math with science, or English with science) in light of students' occupational choice?

Am in no position to comment on this.

Same (as it was).

More emphasis on the practical side.

I liked the "communications" class instead of English literature, etc. This seems a good integration to me.

(no comment)

(I know too little to answer in detail), but no doubt math is used to compute the results of many scientific experiments. As for English--teaching the ability to write clearly, in a scientific style without over-using the professional jargon.

6D. How does the amount and level of learning your son or daughter derived from the PPSP compare with what you anticipated?

My daughter and I and my husband thought the course excellent. Wish our other children (all good students) had had this course offered them.

As expected.

The course was useful and practical with some deveriations.

I feel the academic program was satisfactory but the field trips feel short of what I had hoped for. I made a lot of suggestions on this to her and her instructor.

Much greater than anticipated the program seemed to be very stimulating. I think most every student should be able to participate in a program of this type.

6E. How does this learning compare with what you would have expected at his/her home school?

It was at a higher caliber.

Much better.

I think she had better individual instruction and the type of schooling should prepare her for college.

In the PPSP program he learned much more about career choices first hand than he ever could at the home High School. It is very difficult for a parent or High School to expose a child to a professional career directly. He had a chance to visit and talk with many professionals in the fields of his interest.

She got a better education by far better teachers. Maybe because a small class can be taught more quickly (more material can be covered) and more personal attention can be given.

Very favorably. All students had to spend a lot of time on homework, and were working with zeal and interest.

7A. What do you think of the different aspects of the PPSP,.such as the basic idea of separating students into a special program because of their occupational interest?

The idea is sound and not really brand new. It has been preached in many European countries for decades.

Very good. Keener competition between students of a common occupational interest.

Be sure that he talks with the High School guidance counselor often and has a good relationship with him or her.

It helps the students.

Good.

I feel it is fine if it gives them opportunity to explore careers-career choice is difficult and very important and needs more emphasis!

7B. What do you think of providing field experiences for PPSP students? For any students?

Approve of field experiences for everyone.

Depends on quality of field experience. Classwork would be to more advantage than uninteresting field trips.

This is the only way a student could possibly get an idea of what he is getting into... Field experiences are a necessity for all students in this program and they should be flexible... The student should be able to have several field experiences.

Field experiences are extremely valuable, and , I believe, absolutely necessary for prospective doctors and nurses. They have to know and like their field before they devote their life to it.

Field experiences are invaluable. Erases any doubts of occupation chosen, builds confidence (E.G. Applying for a job later), knowledge of how business runs.

The field experiences are useful because the student faces the world outside the school.

7C. What would be the best location or type of school in which to set up a PPSP?

Does not matter.

Don't know.

A junior college or college such as our son attended (Owens Tech) where college labs and libraries are readily available.

The programs should be located in well-equipped High Schools or colleges all over the country. Many of them should be used to counteract the manpower shortage in the health services.

Our best location in this district was as chosen, in conjuction with a Penta County School.

A central located school that could serve a bi-county area.

7D. What aspect of the PPSP do you think was responsible for your son or daughter's decision to be in the PPSP?

Health field program...something new and stimulating... college experience...new facilities and excellent teachers.

Emphasis on subject matter of particular interest to him.

The medical orientation interested her.

1. Her decision to study medicine.
2. The belief that she would get a better preparation for her studies.
3. The opportunity of field experience.
4. The small size of the program and the more personel attention and better quality of testing.

She wants to be a doctor, therefore "Field of Health". She works her best and gets better grades when she is challenged. The advanced courses intrigued her. My other children were also often bored with their High School courses, resulting in lower grades for them.

They offer the program in the medical and health field which she was very interested because of a family friend occupation as a medical technician.

7E. If you had to choose whether to enroll another child in the PPSP for what reasons would you do (or not so) so?

Yes, if the right program was offered for the student.

If the student showed a certain interest and had ability I would suggest this program for more direct exposure but the final choice should definitely be left to the student. In order to succed he needs to have a desire for such a program also conference with the High School guidance counselor and PPSP director would help.

To challenge the child.

If the school (PPSP) offered the child opportunities that he couldn't get in his home school, I would let him change if he wanted to.

If my child were interested in science or biology, or medicine, I should encourage him (her) to participate in any intensive program selected to these interests, which would be taught in a smaller group.

My daughter made her own choice to go to PPSP as she wants to be a doctor. The child must be motivated toward this program himself, not the parent. The child at this age is adult enough to make the choice.

2A. How should students be selected in terms of academic ability? Should all students be academically talented or should there be a range of abilities?

Overall average should at least be a 2.5 or better. There should be a range of abilities.

There should be a range of abilities.

Vocationally or Professionally Talented.

2B. How similar should the vocational interests of the students be? For example, should all students have stated that they would like to be a lab technician or would the "field of health" be an appropriate choice? Should students be admitted ONLY if they are very sure of their career choice?

"Field of health". I think the course helped my daughter decided definitely what she wanted to do.

"Field of health" would be appropriate. No is the answer to the second question.

Not precisely similar-"Field of Health" would be an appropriate choice-admitted when definite interest is shown-there would be no need for the program if career choice is "very sure".

2C. How should a program organizer locate and inform potential students in the program?

Start with eighth grade students.

Through School Principals, and assemblies.

Through the high schools.

2D. What do you think was right or wrong with the method of selection of students in the PPSP in which your son or daughter was enrolled?

I think it was all right.

none

O.K.

3A. What should be the requisites for teachers in the program? Should they have had previous teaching experience? Should they have an in-depth knowledge of their content area?

They should have had teaching experiences of some kind-maybe on the job training. Should have a college education or equivalent and an in-depth knowledge of content areas.

They should be knowledgable in health careers and previous teaching experience. Yes.

Teacher should be career conscious not "Educationally Proper" oriented.

3B. Is it important that the teachers have had actual experience in a profession related to the central profession choice of the students?

Yes.

Yes.

Yes, and enthusiastic about it.

3C. What was right or wrong with the actual PPSP's method of selection?

Right-All eligible students received information about program.

I don't know of any wrong.

It was right to find out who was interested and check with home school for their recommendations.

4A. On what basis should materials be chosen for the program? Should they include typical high school materials? College level materials?

High school requirements-English, etc. could be high school level. Courses related to health field should be college prep. level-anatomy-chemistry.

A mix of both.

Materials should be chosen for the program-Traditional educational materials must be pertinent if used.

4B. What field experiences should be included? Where should they occur? What professionals should be involved? How should field experiences be organized?

On the job experiences in field of interest (NO Vicarious Substitutes-go to the place of job occurance).

I feel a more varied field experience should be available.

Wide variety at the place of business. Professionals that would be interested in the program and the students.

4C. What was right or wrong with the choice of materials and experiences in the actual PPSP?

Material and visual aids were very good.

O.K.

(No comment)

5A. How should the PPSP be coordinated with the home high school--if the PPSP is conducted at a SEPARATE location? Who should be in charge?

JVS and PPSP programs should be separated from home high schools-students experience some difficulty in having two high schools.

Maybe if English and Sociology, etc. could be taken at home school and the health program subjects taken at separate location with professional in charge.

(No comment)

5B. How would you insure that PPSP students have an equal opportunity to engage in extracurricular activities?

If schools get out at same time-start the extracurricular activity at a time when students can return.

Break away from home high school and set up own extracurricular activities.

(No comment)

5C. How would you insure that PPSP students have equal opportunity to guidance services and career and scholarship information?

Have a special guidance counselor that is county orientated for problems of all schools and career and scholarship informed in the health field.

Set them up in some building that PPSP students are housed in.

(No comment)

5D. What was right or wrong with the coordination between the actual PPSP and your son/daughter's home school?

Some communication gap. Loss of most interest in home high school. A clean break from home high school is better.

6A. What kind of academic program would you establish?, same as typical high school? Greater emphasis on career related subjects, all aspects at advanced level? More advanced in career related subject?

All aspects at advanced level.

Same as typical high school with more advanced in career related subject.

Gear academic subjects to career choice . Gear related subjects to level of student.

6B. How would you intergrate the academic program with field experiences?

Show use and need of academic program with field experience- Student must be convinced of the value of academic subjects.

Have a field supervisor more knowledgeable of the program.

(No comment)

6C. How would you integrate different academic subjects (i.e., math with science, or English with science) in light of student's occupational choice?

(No comment)

(No comment)

Show a definite use and relationship between them. Show a need as student persues career training in college, ect.

6D. How does the amount and level of learning your son or daughter derived from the PPSP compare with what you anticipated?

O.K.- His success in college will be a good test.

Field experience was not varied enough.

I'm not sure about the regular high school subjects but I was pleased with the health related subjects.

6E. How does this learning compare with what you would have expected at his/her home school?

She would not have gotten the career related subjects at the home school.

Much better-he was interested in what he was doing in PPSP.

(No comment)

7A. What do you think of the different aspects of the PPSP, such as the basic idea of separating students into a special program because of their occupational interest?

Separate students in special but broad areas (Health).

I like the basic idea if they have a good idea of the occupation they want.

Like it.

7B. What do you think of providing field experiences for PPSP students? For any students?

Good.

I like the idea of field experiences for the students but I feel they need a closer relationship with the field supervisor.

A must.

7C. What would be the best location or type of school in which to set up a PPSP?

If it is to be in a vocational school, it should be close to the home school.

JVS

Integrate into local schools.

7D. What aspect of the PPSP do you think was responsible for your son or daughter's decision to be in the PPSP?

It provided an opportunity to learn about a profession he was interested in and to help him decide on a college major.

It provided career related subjects that were offered and the chance for field experiences.

(No comment)

7E. If you had to choose whether to enroll another child in the PPSP for what reasons would you do (or not do) so?

(No comment)

I strongly recommend the continuation of the program.

How they are doing in the acedemic courses in the home school; the career related subjects offered and what field experiences would be available and how they would be supervised; the qualifications of the director of the PPSP.

VOCATIONAL INTEREST SURVEY
and Permission Request Letters

N

INSTRUMENT N

Vocational Interest Survey

1. Have you made a fairly definite vocational choice?

Yes________ No_______

2. If so, in what field is your vocational choice?

Agriculture (farmer, landscaper, florist) _______________
Art & Music (commercial artist, musician) _______________
Office (bookkeeper, data processor)..... _______________
Home Economics (homemaker).............. _______________
Sales (retail salesperson, sales manager) _______________
Education (teacher, administrator)...... _______________
Business (manager, accountant).......... _______________
Industrial (machinist, welder).......... _______________
Health (nurse, veterinarian, medical doctor, lab technician)................. _______________
Social Science (psychologist, social worker)............................... _______________
Engineering (engineer, designer)....... _______________

3. Had you made this choice by last year?

Yes______ No_______

4. If you were paid $10.00, would you be willing to spend five hours taking tests on a Saturday morning next spring?

Definitely_________ Definitely not__________

Note: The results will be completely confidential and will not be recorded on your academic record.

5. If you are interested, please fill in the following:

Name ____
Address ____
____
Zip _________________________
High School ____

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

CONTROL STUDENT PERMISSION LETTER

Dear ____:

Earlier this year you completed a questionnaire and indicated that you would be willing to take some tests if paid ten dollars. This testing is part of the assessment of an experimental educational program being conducted by the Bureau of Educational Research at Kent State University. This research does not involve an interest in your personal achievement. Your scores on these tests will not be reported in association with your name. Scores will only be reported for groups of students. To determine if you should be included in this research we need to look at your records. We must have your permission to do this, as well as the permission of your parents. If you will allow us to look at your records please sign below and return this form in the enclosed envelope. Also, give your parents the enclosed permission form to complete.

All information gathered during this research will remain confidential. No agency, including your school will have access to your individual scores. Should you be selected for testing and then decide that you don't want to participate, simply do not come to the scheduled testing period.

- -

I, ____, give

my permission to have my records examined, and to be tested.

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

CONTROL PARENT PERMISSION LETTER

Dear Mr. and Mrs. ________________________________:

The Bureau of Educational Research & Services at Kent State University is conducting an assessment of an educational program. This assessment is being conducted under the auspices of the Ohio State Department of Education.

______________________________ has expressed a willingness to participate in a testing program and we are considering employing him/her in this state-wide assessment project. If selected, your son/daughter will receive ten dollars for approximately five hours of testing on a Saturday in the Spring of 1975. The results of this testing will remain entirely confidential because individual results will only be used to compute group scores. This also means that no agency, including the school will have access to your son/daughter's scores.

To determine if your son/daughter should be a part of this project, we will need to look at his/her records. We will be looking at grade point average, aptitude test scores and vocational interest scores. For this we will need your permission. If you will allow us to look at your son/daughter's records and to allow him/her to take these tests, please sign below and return this form in the enclosed envelope. Your son/daughter's participation will be an important contribution to the effective assessment of an educational program that may benefit other students in the future.

I, ____ give

my permission to have my son/daughter's records examined, and allow

him/her to be tested.

KENT STATE
UNIVERSITY
KENT OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

AKRON CONTROL STUDENT PERMISSION LETTER

Dear ____________________________:

Earlier this year you completed a questionnaire and indicated that you would be willing to take some tests if paid ten dollars. This testing is part of the assessment of an experimental educational program being conducted by the Bureau of Educational Research at Kent State University. This research does not involve an interest in your personal achievement. Your scores on these tests will not be reported in association with your name. Scores will only be reported for groups of students. The tests will be given in Room 316 of the Kent State University Student Center, starting at 8:30 a.m. on Saturday, April 26, 1975. The testing period will last about six hours so, besides paying you ten dollars for your participation, we will provide lunch at the Center's cafeteria-snack bar. You will be given a parking ticket when you enter the student center parking lot but this will be validated during the lunch break so that you will not have to pay for parking. If you are willing to be tested please sign below and return this form in the enclosed envelope. Also, give your parents the enclosed permission form to complete.

All information gathered during this research will remain confidential. No agency, including your school will have access to your individual scores. Should you decide that you do not want to participate or if you have any questions, please call the Bureau at 672-7918 and ask for Lillian Buchanan or Diana Plecker. If transportation to Kent is a problem, please call, as we may be able to help. Also, an immediate response will be greatly appreciated.

I, ____ give my permission

to be tested.

KENT STATE
UNIVERSITY
KENT OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

AKRON CONTROL PARENT PERMISSION LETTER

Dear Mr. and Mrs. ______________________:

The Bureau of Educational Research & Services at Kent State University is conducting an assessment of an educational program. This assessment is being conducted under the auspices of the Ohio State Department of Education with the knowledge and consent of the Office of Curriculum and Instruction of the Akron Board of Education.

____________________ has expressed a willingness to participate in a testing program and we would like to employ him/her in this state wide assessment project. Your son/daughter will receive ten dollars for approximately six hours of testing between 8:30 and 3:30 on Saturday, April 26, 1975. The results of this testing will remain entirely confidential because individual results will only be used to compute group scores. This also means that no agency, including the school will have access to your son/daughter's scores.

The testing will take place at the Kent State University Student Center in Room 316. A map is enclosed. The drive to Kent should take approximately forty minutes. We would like to begin at 8:30. a.m. Promptness will be greatly appreciated. There will be a lunch break and the students will be provided with meal tickets for use in the student center cafeteria-snack bar. Parking lot tickets will be validated during the lunch break so that parking in the student center lot will be free. If transportation to Kent is a problem, or if you have any other questions or concerns, please call the Bureau at 672-7918 and ask to speak to Lillian Buchanan or Diana Plecker. If you will allow your son/daughter to take these tests, please sign below and return this form in the enclosed envelope. Your son/daughter's participation will be an important contibution to the effective assessment of an educational program that may benefit other students in the future. If this form were returned immediately we would be very grateful, because this would give us time to deal with any problems that arise.

- -

I, ______________________________________ give my permission to have my son/daughter tested. Transportation __________ (is) (is not) a problem.

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

PPSP STUDENT PERMISSION LETTER

Dear

The Bureau of Educational Research and Services is conducting an assessment of the Pre-Postsecondary Program in which you have been a student. To carry out this assessment we need to look at your records and those of the other students in the program. Scores from these records will be used to compute averages for the Pre-Postsecondary student groups. These averages will then be used to choose students for a comparison group that will also be taking the achievement test and career maturity inventory this year. Information from your records will only be used in the computation of averages and will not be reported in association with your name.

We must have your permission to look at your records. If you will allow us to do so please sign below and return this form to the school. Your help in this matter will be an important contribution to the assessment of the success of the Pre-Postsecondary Program. The information gained in this assessment will be used in making decisions about the use of similar programs. By participating you will indirectly contribute to the improved education of future high school students.

I, ____________________________, give my permission to have my records examined and to be tested.

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

PPSP PARENT PERMISSION LETTER

Dear ______________________________:

During the past two years, ______________________________ has been in the Pre-Postsecondary Program which is an attempt to help students make wiser career choices and to see more relevance in their academic subjects. As you are probably aware, the implications for high school education of such a program are potentially far reaching, and for this reason it is necessary to get data about the success of the program.

In order to get the data that we need, it is necessary to give the students in this program a standardized achievement test and a career maturity inventory. This testing will be done in the near future, and will require two mornings of testing time. The test results will be used by the evaluation agency chosen for the project, the Bureau of Educational Research and Services at Kent State University, and care will be taken so that the only people who will receive your son's or daughter's score will be this evaluation agent. Anonymity of individual scores is assured and any use of results will only be in group data form. You may remember receiving a similar consent request last year. The testing program will be the same this year, except that we will also be administering tests to a group of students who have academic records similar to the Pre-Postsecondary students. To choose the other group we need to look at the records of the Pre-Postsecondary students. Information taken from the records will be used to compute averages for Pre-Postsecondary students. Students will be chosen for the comparison group who have scores close to these averages Your son or daughter's score will not be reported separately but only used in the computation of averages. Your permission is important to the educational program of your child and other students who may benefit from this program in the future.

If you agree to have your son or daughter's records examined and to have him/her tested, please sign the slip below and return it to the school. Thank you for your cooperation.

- -

I agree to have my son or daughter's records examined, and to allow him/her to be tested.

____
Signature

____
Date

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

CONTROL STUDENT NOTIFICATION LETTER

Dear ________________________________:

I am happy to say that you have been selected to participate in the testing program in which you previously indicated an interest. Because this testing will take up valuable time you will be paid ten dollars for completing two tests, an achievement battery and an interest inventory. The testing period will last about five and one half hours, so a catered hot lunch will be provided.

The tests will be given in Room 102 of the Health Building of Owens Technical College on Saturday, May 10, 1975. Testing will begin at 9:00 a.m. With a half-hour break for lunch, you should be finished by 2:30 p.m. Maps of the College and the surrounding area are enclosed. If you need a ride or would like to share a ride with another student the counselor at your school has the names of other students who may be participating.

Your participation will be greatly appreciated and will be an important contribution to research that may improve the education of future high school students.

Please complete the enclosed form and return it in the enclosed envelope, as soon as you possibly can, so that I will know whether you can come.

Thank you very much,

Lillian Buchanan

LB/dlp

Enclosures

KENT STATE
UNIVERSITY
KENT, OHIO 44242

BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

STUDENT SCORE REQUEST AND PERMISSION FORM

TO: Lillian Buchanan
Bureau of Educational Research & Services

I am requesting that a copy of my scores on the STS Educational Development Series and the Career Maturity Inventory be sent to me.

I understand that these tests were selected for assessment of achievement by group, and not for purposes of detailed individual analysis. I further understand that before using my scores as part of an academic or vocational decision-making process, it is preferable that I consult with a school counselor or school psychologist. Also, I have the option of contacting Lillian Buchanan or Dr. Sonya Blixt at the Bureau of Educational Research and Services, Kent State University for help in interpreting the results.

Students Signature ______________________________

Parents Signature (for those students under 18)

____

KENT STATE
UNIVERSITY
KENT, OHIO 44242

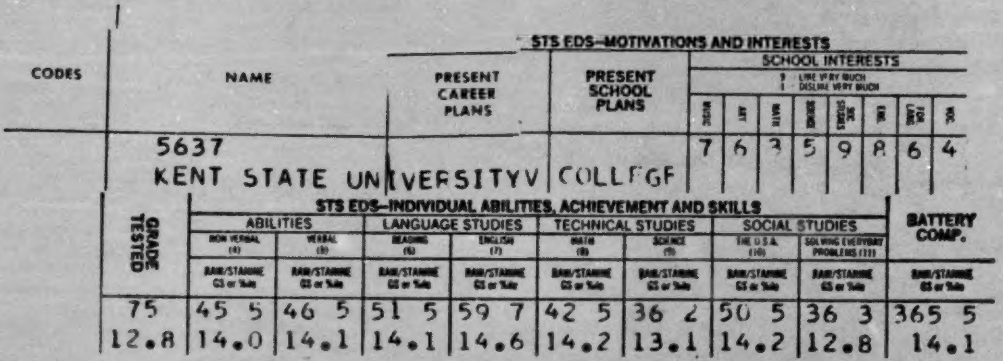
BUREAU OF EDUCATIONAL
RESEARCH AND SERVICES
(216) 672-7918

SCORES REPORT LETTER

Dear Student:

Below you will find your scores on the Scholastic Testing Service Educational Development Series (STS/EDS) and the Career Maturity Inventory (CMI) that you requested. Remember when looking at your scores that you did not take either test under typical administration conditions and you may have scored differently under the typical conditions.

STS EDUCATIONAL DEVELOPMENT SERIES



STS EDS—MOTIVATIONS AND INTERESTS

CODES	NAME	PRESENT CAREER PLANS	PRESENT SCHOOL PLANS	SCHOOL INTERESTS (9 LIKE VERY MUCH, 1 DISLIKE VERY MUCH)							
				MUSIC	ART	MATH	SCIENCE	SOC STUDIES	ENG	FOR LANG	VOC
	5637 KENT STATE UNIVERSITYV		COLLFGF	7	6	3	5	9	8	6	4

STS EDS—INDIVIDUAL ABILITIES, ACHIEVEMENT AND SKILLS

GRADE TESTED	ABILITIES		LANGUAGE STUDIES		TECHNICAL STUDIES		SOCIAL STUDIES		BATTERY COMP.
	NON VERBAL (4)	VERBAL (5)	READING (6)	ENGLISH (7)	MATH (8)	SCIENCE (9)	THE U.S.A. (10)	SOLVING EVERYDAY PROBLEMS (11)	
	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile	RAW/STANINE GS or %ile
75	45 5	46 5	51 5	59 7	42 5	36 2	50 5	36 3	365 5
12.8	14.0	14.1	14.1	14.6	14.2	13.1	14.2	12.8	14.1

The reported categories for the STS/EDS are explained from left to right as follows:

Codes: Example: 120 8. This is simply an identification number assigned to the scores by the testing service.

Name: Your name as written on the answer sheet.

MOTIVATIONS AND INTERESTS:

Present Career Plans: Your first and second career area choices from amongst the following career fields: personal service, sports, mining, factories, farming, government service, shop, transportation, construction, stores, offices, sales, business, arts, social sciences, and sciences.

School Plans: Shows what long-term educational plan you chose from the following: quit school, finish high school, go to trade school, go to junior college, go to a four-year college, and go to graduate school (listed as coll +).

School Interests: This shows your rating of your level of interest in eight curriculum areas on a 9-point scale, where 9 = like, 1 = dislike, and 5 is midway between "Like" and "Dislike."

Grade Tested: This shows the grade and month of testing. For example, 12.8 means you took the test in the twelfth grade, eighth month.

INDIVIDUAL ABILITIES, ACHIEVEMENT, AND SKILLS (Abilities, Language Studies, Technical Studies, Social Studies)

In each score column are three kinds of information:

Your RAW SCORE on the test--the actual number of questions you answered correctly.

Your LOCAL STANINE SCORE--showing how well you did on the test compared with other pupils in your grade in your school system. Stanine scores range from "9" (very high) to "1" (very low). A stanine of "5" is average.

Your NATIONAL NORM SCORE--showing how well you did on the test compared with other pupils tested nationally in your grade. These three entries are illustrated below.

Raw score 42 6 Stanine (local norm)
8.8
Grade Score (national norm)

Note: No score is reported for those students who did not take the ability sections.

Battery Composite: Reports your raw score, local stanine, and national norm score for all ability and achievement tests combined (Parts 4-11). Again, no score is reported on the Battery Composite for those students who did not take the ability sections.

CAREER MATURITY INVENTORY

The Career Maturity Inventory (CMI) is intended to survey various attitudes and competencies which are deemed important in making decisions about a career. It is not a personality inventory, an interest inventory, an achievement test, or an aptitude test. There are no "right" or "wrong" answers, but some answers are considered "best" in terms of the test constructors' definition of career maturity. The number of these "best" answers which you chose is your score.

The Attitude Scale - asked you about your attitudes and feelings toward making a career choice and entering the world of work.

Knowing Yourself - asked you to appraise a person's interests and abilities on the basis of a short description of that person.

Knowing About Jobs - asked you to select the correct occupational title for the job description you were given.

Choosing a Job - asked you to choose the best occupation for a person based on a brief description of that person.

Looking Ahead - asked you to select the correct sequence of steps a person should complete in preparing for different occupations.

What Should They Do? - asked you to choose the best solution to a school or choice of career problem.

Career Maturity Inventory Scores

	Attitude Scale	Knowing Yourself	Knowing About Jobs	Choosing A Job	Looking Ahead	What Should They Do?
Raw Score						
National Percentile						
Total Possible	50	20	20	20	20	20

The number in the first row is your raw score on that scale--the number of questions you answered correctly. The number in the second row is your national percentile score--how you compare to other students in your grade. The total number of questions in each scale is listed in the third row.

Please remember that because of the atypical testing conditions (and the unusual manner of reporting scores) to interpret your results with caution. If you have any questions or concerns about your scores, be sure to contact a high school or college counselor for help. Also, feel free to write or call me at the adddress on the letterhead about any questions.

Sincerely,

Lillian Buchanan
Evaluation Coordinator
Pre-Postsecondary Program

LB:dlp

0

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Music Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	9.44	2/60	1.8943 n.s.
Between PPSP and Control	3.32	1/60	6.6572*
Interaction (Sites x Conditions)	1.55	2/60	0.3116 n.s.
Within Groups	4.98	60	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	6.60	5.60	5.72	8.30	7.44	6.56
Ns	10	10	18	10	9	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Art Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	17.97	2/60	3.3559*
Between PPSP and Control	1.54	1/60	0.2884 n.s.
Interaction (Sites x Conditions)	5.61	2/60	1.0470 n.s.
Within Groups	5.35	60	

$**p < .01$
$*p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	5.90	6.90	4.44	5.30	7.00	5.89
Ns	10	10	18	10	9	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Vocational Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	8.47	2/57	1.8856 n.s.
Between PPSP and Control	4.30	1/57	0.9567 n.s.
Interaction (Sites x Conditions)	0.22	2/57	0.0482 n.s.
Within Groups	4.49	57	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	4.20	5.33	4.56	4.50	6.00	5.22
Ns	10	9	18	10	7	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Foreign Language Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	0.92	2/59	0.1570 n.s.
Between PPSP and Control	2.32	1/59	0.3982 n.s.
Interaction (Sites x Conditions)	2.78	2/59	0.4774 n.s.
Within Groups	5.83	59	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	5.70	5.10	4.78	5.50	5.25	6.00
Ns	10	10	18	10	8	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the English Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	0.005	2/59	0.0012 n.s.
Between PPSP and Control	19.670	1/59	4.3480*
Interaction (Sites x Conditions)	1.860	2/59	0.4119 n.s.
Within Groups	4.520	59	

**$p < .01$
*$p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	5.60	6.00	6.17	7.40	7.00	6.78
Ns	10	10	18	10	8	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Social Science Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	8.34	2/59	1.9144 n.s.
Between PPSP and Control	12.96	1/59	2.9746 n.s.
Interaction (Sites x Conditions)	3.10	2/59	0.7106 n.s.
Within Groups	4.36	59	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	5.70	6.30	6.56	6.20	8.13	7.00
Ns	10	10	18	10	8	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Science Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	5.24	2/60	1.1449 n.s.
Between PPSP and Control	3.95	1/60	0.8632 n.s.
Interaction (Sites x Conditions)	0.59	2/60	0.1290 n.s.
Within Groups	4.58	60	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	7.80	7.20	7.78	7.60	6.33	7.33
Ns	10	10	18	10	9	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Mathematics Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	18.61	2/59	2.7209 n.s.
Between PPSP and Control	2.43	1/59	0.3559 n.s.
Interaction (Sites x Conditions)	0.66	2/59	0.0964 n.s.
Within Groups	6.84	59	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	6.40	4.50	6.50	5.70	4.50	6.00
Ns	10	10	18	10	8	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks)) and Between Conditions (PPSP and Control) for the Non-Verbal Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	96.100	1/36	1.1172
Between PPSP and Control	1537.600	1/36	17.8756**
Interaction (Sites x Conditions)	372.100	1/36	4.3259*
Within Groups	86.017	36	

**p < .01
*p < .05

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Means	49.40	52.40	43.10	33.90
Ns	10	10	10	10

Scheffe Tests

Penta x Toledo S = 1.52 n.s.
Scarlet Oaks x Cincinnati S = 4.46**

**p < .01

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Verbal Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	390.625	1/36	5.8280*
Between PPSP and Control	7.225	1/36	0.1078
Interaction (Sites x Conditions)	133.225	1/36	1.9877
Within Groups	67.025	36	

$^{**}p < .01$
$^{*}p < .05$

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Means	44.20	41.60	47.00	37.10
Ns	10	10	10	10

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Total Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	874.225	1/36	4.5353*
Between PPSP and Control	1755.625	1/36	9.1079**
Interaction (Sites x Conditions)	950.625	1/36	4.9317*
Within Groups	192.758	36	

**$p < .01$
*$p < .05$

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Means	93.60	94.00	90.10	71.00
Ns	10	10	10	10

Scheffe Tests

Scarlet Oaks x Cincinnati S = 3.7043**
Penta x Toledo S = 0.56 n.s.

**$p < .01$

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks) and Between Conditions (PPSP and Control) for the Battery Composite Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	37140.132	1/35	15.7876**
Between PPSP and Control	11104.673	1/35	4.7204*
Interaction (Sites x Conditions)	8688.781	1/35	3.6935
Within Groups	2352.483	35	

**p < .01
*p < .05

	PPSP		CONTROL	
	Penta	Scarlet Oaks	Toledo	Cincinnati
Means	381.90	350.00	378.00	286.33
Ns	10	10	10	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Reading Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	1504.5428	2/63	19.5630**
Between PPSP and Control	455.6042	1/63	5.9240*
Interaction (Sites x Conditions)	133.3864	2/63	1.7344
Within Groups	76.9078	63	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	50.00	41.50	60.40	49.70	36.10	50.11
Ns	10	10	20	10	10	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the English Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	912.326	2/63	8.9691**
Between PPSP and Control	1.221	1/63	0.0120
Interaction (Sites x Conditions)	179.623	2/63	1.7659
Within Groups	101.719	63	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	51.40	44.30	50.35	52.80	38.30	55.78
Ns	10	10	20	10	10	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Mathematics Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	1027.109	2/63	13.8609**
Between PPSP and Control	305.580	1/63	4.1238*
Interaction (Sites x Conditions)	30.994	2/63	0.4183
Within Groups	74.101	63	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	45.50	32.30	47.05	39.50	30.70	41.56
Ns	10	10	20	10	10	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Science Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	456.248	2/63	4.3152*
Between PPSP and Control	186.834	1/63	1.7671
Interaction (Sites x Conditions)	322.969	2/63	3.0546
Within Groups	105.731	63	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	50.30	49.90	51.55	49.70	37.70	54.11
Ns	10	10	20	10	10	9

Analysi[illegible] Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the U. S. A. Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	163.953	2/63	1.3578
Between PPSP and Control	9.201	1/63	0.0762
Interaction (Sites x Conditions)	58.684	2/63	0.4860
Within Groups	120.752	63	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	45.80	45.00	49.65	50.30	43.20	49.22
Ns	10	10	20	10	10	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Solving Everyday Problems Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	237.206	2/61	3.4003*
Between PPSP and Control	14.249	1/61	0.2043
Interaction (Sites x Conditions)	173.248	2/61	2.4835
Within Groups	69.759	61	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	45.30	43.00	42.68	45.90	35.67	46.56
Ns	10	10	19	10	9	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Basic Skills Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	10082.604	2/63	21.4552**
Between PPSP and Control	1422.849	1/63	3.0277
Interaction (Sites x Conditions)	91.217	2/63	0.1941
Within Groups	469.938	63	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	146.90	118.10	157.80	142.00	105.10	147.44
Ns	10	10	20	10	10	9

P

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Knowing Yourself Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	20.600	2/70	5.247**
Between PPSP and Control	1.252	1/70	0.319
Interaction (Sites x Conditions)	6.362	2/70	1.621
Within Groups	3.926	70	

**p ⟨ .01
*p ⟨ .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	16.20	14.15	16.43	16.40	15.62	16.89
Ns	10	13	21	10	13	9

Scheffe Tests

Penta x Scarlet Oaks S = 2.96 n.s.
Penta x Firestone S = 0.30 n.s.
Scarlet Oaks x Firestone S = 3.26*

*p ⟨ .05

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Attitude Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	10.520	2/70	0.6249 n.s.
Between PPSP and Control	61.490	1/70	3.6522 n.s.
Interaction (Sites x Conditions)	2.004	2/70	0.1190 n.s.
Within Groups	16.840	70	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	42.60	41.46	41.10	40.50	39.15	39.89
Ns	10	13	21	10	13	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the What Should They Do Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	40.488	2/70	4.281*
Between PPSP and Control	0.564	1/70	0.060
Interaction (Sites x Conditions)	10.612	2/70	1.122
Within Groups	9.458	70	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	12.30	11.31	12.71	11.80	10.62	14.44
Ns	10	13	21	10	13	9

Scheffe Tests

Penta x Scarlet Oaks	S = 0.77 n.s.
Penta x Firestone	S = 0.35 n.s.
Scarlet Oaks x Firestone	S = 1.29 n.s.

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Looking Ahead Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	15.458	2/70	1.786
Between PPSP and Control	12.292	1/70	1.420
Interaction (Sites x Conditions)	26.997	2/70	3.118*
Within Groups	8.658	70	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	17.00	13.77	16.19	16.80	17.00	17.11
Ns	10	13	21	10	13	9

Scheffe Tests

Penta x Toledo	S = 0.152 n.s.
Scarlet Oaks x Cincinnati	S = 2.790 n.s.
Firestone x Akron	S = 0.785 n.s.
Penta x Scarlet Oaks	S = 2.610 n.s.
Penta x Firestone	S = 0.720 n.s.
Scarlet Oaks x Firestone	S = 2.330 n.s.

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Choosing a Job Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	6.263	2/70	0.507
Between PPSP and Control	2.112	1/70	0.171
Interaction (Sites x Conditions)	4.158	2/70	0.336
Within Groups	12.365	70	

$^{**}p < .01$
$^{*}p < .05$

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	16.00	14.85	14.90	15.80	14.92	16.22
Ns	10	13	21	10	13	9

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Conditions (PPSP and Control) for the Knowing About Jobs Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	8.440	2/70	1.167
Between PPSP and Control	0.041	1/70	0.006
Interaction (Sites x Conditions)	4.073	2/70	0.563
Within Groups	7.229	70	

**p < .01
*p < .05

	PPSP			CONTROL		
	Penta	Scarlet Oaks	Firestone	Toledo	Cincinnati	Akron
Means	18.30	17.00	18.33	18.60	18.00	18.89
Ns	10	13	21	10	13	9

Q

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Art Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	21.940	2/33	2.1597 n.s.
Between Years	0.125	1/33	0.0625 n.s.
Interaction (Sites x Conditions)	1.180	2/33	0.5889 n.s.
Within Groups	10.160	33	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	5.75	6.65	4.78
	Ns	20	20	32
1974	Means	5.60	6.40	4.94
	Ns	10	10	16
1975	Means	5.90	6.90	4.63
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Music Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	6.23	2/33	0.5877 n.s.
Between Years	11.68	1/33	2.7888 n.s.
Interaction (Sites x Conditions)	2.80	2/33	0.6686 n.s.
Within Groups	10.61	33	

$^{**}p < .01$
$^{*}p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	6.00	4.90	5.59
	Ns	20	20	32
1974	Means	5.40	4.20	5.50
	Ns	10	10	16
1975	Means	6.60	5.60	5.67
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Science Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	9.660	2/33	2.4116 n.s.
Between Years	3.125	2/33	1.3151 n.s.
Interaction (Sites x Conditions)	2.98	2/33	1.2532 n.s.
Within Groups	4.01	33	

$^{**}p < .01$
$^{*}p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	8.25	6.95	7.97
	Ns	20	20	32
1974	Means	8.70	6.70	8.31
	Ns	10	10	16
1975	Means	7.80	7.20	7.63
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Social Science Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	4.88	2/33	0.8800 n.s.
Between Years	8.00	1/33	3.7236 n.s.
Interaction (Sites x Conditions)	4.10	2/33	0.9542 n.s.
Within Groups	5.55	33	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	6.15	6.25	6.94
	Ns	20	20	32
1974	Means	6.60	6.20	7.44
	Ns	10	10	16
1975	Means	5.70	6.30	6.44
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the English Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	3.36	1/33	0.4438 n.s.
Between Years	7.35		2.5598 n.s.
Interaction (Sites x Conditions)	5.22	2/33	1.8176 n.s.
Within Groups	7.57	33	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	6.35	5.75	6.47
	Ns	20	20	32
1974	Means	7.10	5.50	6.88
	Ns	10	10	16
1975	Means	5.60	6.00	6.06
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Foreign Language Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	9.95	2/33	1.0580
Between Years	20.06	1/33	6.9726
Interaction (Sites x Conditions)	1.01	2/33	0.3521
Within Groups	9.40	33	

$^{**}p < .01$
$^{*}p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	6.45	5.40	5.22
	Ns	20	20	32
1974	Means	7.20	5.70	5.75
	Ns	10	10	16
1975	Means	5.70	5.10	4.69
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Vocational Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	10.29	2/33	1.1248
Between Years	2.00	1/33	0.4528
Interaction (Sites x Conditions)	3.62	2/33	0.8185
Within Groups	9.15	33	

**$p < .01$
*$p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	4.80	5.75	4.47
	Ns	20	20	32
1974	Means	5.40	6.00	4.31
	Ns	10	10	16
1975	Means	4.20	5.50	4.63
	Ns	10	10	16

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Mathematics Interest Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	45.19	2/33	4.5450*
Between Years	6.72	1/33	3.0506 n.s.
Interaction (Sites x Conditions)	1.78	2/33	0.8075 n.s.
Within Groups	9.94	33	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	6.80	4.45	7.03
	Ns	20	20	32
1974	Means	7.20	4.40	7.50
	Ns	10	10	16
1975	Means	6.40	4.50	6.56
	Ns	10	10	16

R

Analysis of Variance Results Between Sites
(Penta, Scarlet Oaks) and Between Years
(1974, 1975)
for the Total Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	515.335	1/19	1.9982
Between Years	1429.167	1/19	55.0901**
Interaction (Sites x Conditions)	135.429	1/19	5.2204*
Within Groups	257.902	19	

$^{**}p < .01$
$^{*}p < .05$

		Penta	Scarlet Oaks
Averaged Across Years	Means	89.65	82.63
	Ns	20	22
1974	Means	85.70	75.09
	Ns	10	11
1975	Means	93.60	90.18
	Ns	10	11

Scheffe Tests

Penta 1974 x Penta 1975 S = 1.10 n.s.

Scarlet Oaks 1974 x Scarlet Oaks 1975 S = 2.20 n.s.

Analysis of Variance Results Between Sites
(Penta, Scarlet Oaks) and Between Years
(1974, 1975)
for the Battery Composite Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	22825.186	1/19	5.8351*
Between Years	6339.429	1/19	65.1238**
Interaction (Sites x Conditions)	307.031	1/19	3.1541
Within Groups	3911.727	19	

**p < .01
*p < .05

		Penta	Scarlet Oaks
Averaged Across Years	Means	37.25	32.57
	Ns	20	22
1974	Means	363.00	310.90
	Ns	10	11
1975	Means	381.90	340.63
	Ns	10	11

Analysis of Variance Results Between Sites
(Penta, Scarlet Oaks) and Between Years
(1974, 1975)
Verbal Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	361.3126	1/19	2.8758
Between Years	113.3571	1/19	8.3515**
Interaction (Sites x Conditions)	11.2519	1/19	0.8290
Within Groups	125.6402	19	

**p < .01
 *p < .05

		Penta	Scarlet Oaks
Averaged Across Years	Means	43.10	37.22
	Ns	20	22
1974	Means	42.00	35.09
	Ns	10	11
1975	Means	44.20	39.36
	Ns	10	11

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks) and Between Years (1974, 1975) for the Non-Verbal Ability Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	13.6366	1/19	0.1632
Between Years	737.5238	1/19	59.6631**
Interaction (Sites x Conditions)	68.6080	1/19	5.5501*
Within Groups	83.5404	19	

**$p < .01$
*$p < .05$

		Penta	Scarlet Oaks
Averaged Across Years	Means	46.55	45.40
	Ns	20	22
1974	Means	43.70	40.00
	Ns	10	11
1975	Means	49.40	50.82
	Ns	10	11

Scheffe Tests

Penta 1974 x Penta 1975 S = 1.39 n.s.

Scarlet Oaks 1974 x Scarlet Oaks 1975 S = 2.78 n.s.

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Math Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	1384.35	2/35	17.52**
Between Years	26.64	1/35	1.42 n.s.
Interaction (Sites x Conditions)	10.52	2/35	0.56 n.s.
Within Groups	79.01	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	44.05	32.20	46.61
	Ns	20	20	36
1974	Means	42.60	32.10	46.22
	Ns	10	10	18
1975	Means	45.50	32.30	47.00
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Composite Basic Skills Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	13031.72	2/35	22.1316**
Between Years	1.59	1/35	0.01 n.s.
Interaction (Sites x Conditions)	224.00	2/35	1.2356 n.s.
Within Groups	588.83	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	145.55	115.25	160.25
	Ns	20	20	36
1974	Means	144.20	112.40	162.89
	Ns	10	10	18
1975	Means	146.90	118.10	157.61
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the English Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	645.56	2/35	4.4859*
Between Years	0.47	1/35	0.0100 n.s.
Interaction (Sites x Conditions)	82.66	2/35	1.7261 n.s.
Within Groups	143.91	35	

**$p < .01$
*$p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	50.90	42.10	51.72
	Ns	20	20	36
1974	Means	50.40	39.90	53.06
	Ns	10	10	18
1975	Means	51.40	44.30	50.39
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Reading Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	2934.01	2/35	27.962**
Between Years	50.58	1/35	1.5786 n.s.
Interaction (Sites x Conditions)	33.02	2/35	1.0305 n.s.
Within Groups	104.93	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	50.60	40.95	61.92
	Ns	20	20	36
1974	Means	51.20	40.40	63.61
	Ns	10	10	18
1975	Means	50.00	41.50	60.22
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Solving Problems Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	11.10	2/35	0.1342 n.s.
Between Years	3.80	1/35	0.0786 n.s.
Interaction (Sites x Conditions)	51.18	2/35	1.0578 n.s.
Within Groups	82.76	35	

$^{**}p < .01$
$^{*}p < .05$

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	43.55	42.20	43.33
	Ns	20	20	36
1974	Means	41.80	41.40	44.28
	Ns	10	10	18
1975	Means	45.30	43.00	42.39
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the U. S. A. Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	518.95	2/35	3.5318*
Between Years	0.12	1/35	0.0016 n.s.
Interaction (Sites x Conditions)	72.79	2/35	0.9833 n.s.
Within Groups	146.94	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	43.90	44.55	51.61
	Ns	20	20	36
1974	Means	42.00	44.10	53.00
	Ns	10	10	18
1975	Means	45.80	45.00	50.22
	Ns	10	10	18

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Science Achievement Subtest of the STS

Components	Mean Square	Degrees of Freedom	F
Between Sites	167.02	2/35	1.4713 n.s.
Between Years	25.47	1/35	0.3456 n.s.
Interaction (Sites x Conditions)	85.47	2/35	1.1596 n.s.
Within Groups	113.52	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	49.80	46.95	52.03
	Ns	20	20	36
1974	Means	49.30	44.00	52.72
	Ns	10	10	18
1975	Means	50.30	49.90	51.33
	Ns	10	10	18

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Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the What Should They Do Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	7.6697	2/35	0.4567
Between Years	10.3158	1/35	0.9248
Interaction (Sites x Conditions)	9.6405	2/35	0.8643
Within Groups	16.7948	35	

**p < .01
 *p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	12.66	11.45	11.76
	Ns	18	20	38
1974	Means	12.89	11.50	10.89
	Ns	9	10	19
1975	Means	12.44	11.40	12.63
	Ns	9	10	19

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Looking Ahead Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	22.4282	2/35	1.4086
Between Years	76.0000	1/35	4.3335*
Interaction (Sites x Conditions)	12.0908	2/35	0.6894
Within Groups	15.9229	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	16.89	15.65	14.97
	Ns	18	20	38
1974	Means	16.89	14.20	13.74
	Ns	9	10	19
1975	Means	16.89	17.10	16.21
	Ns	9	10	19

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Choosing a Job Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	11.6909	2/35	0.4339
Between Years	42.7500	1/35	3.3270
Interaction (Sites x Conditions)	5.0102	2/35	0.3899
Within Groups	26.9459	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	15.44	13.95	14.31
	Ns	18	20	38
1974	Means	15.22	12.70	13.58
	Ns	9	10	19
1975	Means	15.67	15.20	15.05
	Ns	9	10	19

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Knowing About Jobs Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	0.3868	2/35	0.0822
Between Years	0.1184	1/35	0.0445
Interaction (Sites x Conditions)	0.6629	2/35	0.2493
Within Groups	4.7076	35	

**p $<$ .01
*p $<$ .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	18.33	18 .05	18.21
	Ns	19	20	38
1974	Means	18.56	17.90	18.26
	Ns	9	10	19
1975	Means	18.11	18.20	18.16
	Ns	9	10	19

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Knowing Yourself Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	11.928	2/35	1.9143
Between Years	32.894	1/35	17.3704**
Interaction (Sites x Conditions)	39.124	2/35	2.0660
Within Groups	6.231	35	

**p < .01
*p < .05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	15.11	14.85	16.07
	Ns	18	20	38
1974	Means	14.22	13.80	15.74
	Ns	9	10	19
1975	Means	16.00	15.90	16.42
	Ns	9	10	19

Analysis of Variance Results Between Sites (Penta, Scarlet Oaks, Firestone) and Between Years (1974, 1975) for the Attitude Subtest of the CMI

Components	Mean Square	Degrees of Freedom	F
Between Sites	8.130	2/35	0.4281
Between Years	22.118	1/35	2.7374
Interaction (Sites x Conditions)	7.287	2/35	0.9019
Within Groups	18.988	35	

**p <.01
*p <.05

		Penta	Scarlet Oaks	Firestone
Averaged Across Years	Means	41.88	41.05	40.73
	Ns	18	20	38
1974	Means	41.00	40.00	40.63
	Ns	9	10	19
1975	Means	42.77	42.10	40.84
	Ns	9	10	19

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KENT STATE
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DEPARTMENT OF
SECONDARY EDUCATION
(216) 672-2472

LETTER TO TEACHERS REGARDING CRITERION-REFERENCED TESTING

At the October workshop for teachers involved in the pre-postsecondary project, the proposed project evaluation was discussed. One of the ideas coming out of that meeting was the use of tests specifically tailored to the objectives teachers have had in mind as they have designed learning experiences for their students. Since last year's evaluation showed that the program differs at the several participating schools, construction of a separate test for each school was proposed. We have been recently asked to serve as members of the project evaluation team with the specific responsibility of assisting in the development of these tests.

Because each test will be specifically designed for the curriculum at a given school, the first step will be to discuss with you the objectives you have had in mind in your teaching. In order to construct a test which will give us information regarding student mastery of your objectives, it will be necessary to state the objectives in terms of measurable student behavior. For example, one of the broad goals of the pre-postsecondary program was:

> The student shall be able to make a realistic career choice.

To enable us to evaluate student attainment of such a goal, it is necessary to be more specific. For purposes of test construction it is useful to ask: What measurable behavior on the part of the student might be considered evidence that he is able to make a career choice? One of the possible answers to this question is:

> The student will be able to describe the academic preparation that is necessary to become a dentist.

Because the latter statement is more specific, it is possible to write test items to determine student mastery.

We plan to be meeting with you within the next several weeks. In the meantime, it will be very helpful if you can generate a list of the objectives that have received the greatest emphasis in your classes. This will give us a starting point for our discussions with you.

Mr. Gerry Stavney will assist all parties involved to schedule our meetings with mutual convenience in mind. Please feel free to communicate your questions or concerns directly to us, or to Mr. Stavney, who maintains an office here in the College of Education. We look forward to meeting with you in the near future.

Sincerely,

Nancy Bredemeier

Nancy Bredemeier, Ph.D.
Assistant Professor
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NB/dlp

U

LIFE SCIENCE
SCARLET OAKS

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. As cells become more and more specialized for particular functions they also become:

   A. larger
   B. more capable of adapting to different environments
   C. more capable of functioning alone
   D. more dependent on other types of cells

2. The most plentiful substance in protoplasm is:

   A. protein
   B. carbohydrates
   C. water
   D. carbon

3. The genetic material of the cell consists of:

   A. ATP
   B. DNA
   C. CNS
   D. RNA

4. Protein synthesis occurs in the cell:

   A. nucleus
   B. ribosomes
   C. mitochondria
   D. vacuoles

5. The immediate energy needs of a cell are satisfied through:

   A. digestion of proteins
   B. the action of lysosomes
   C. the breaking of ATP phosphate bonds
   D. the action of enzymes on amino acids

6. Which cell process requires expenditure of cellular energy?

A. active transport
B. diffusion
C. osmosis
D. none of the above

7. Vigorous exercise results in an increase in:

A. the number of red blood cells
B. the rate of breathing
C. blood pressure
D. all of the above

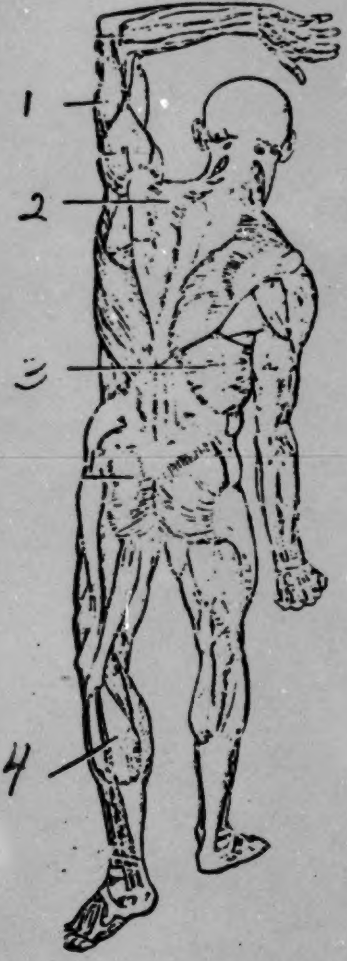
8. Food moves through the digestive tract by means of muscular contractions called:

A. deamination
B. diastolic pressure
C. peristalsis
D. deglutition

9. A man with Rh+ blood:

A. may safely receive blood from an Rh- individual having the same blood type
B. cannot produce an Rh+ child when paired with a woman having Rh- blood
C. may safely be a blood donor for a Rh- relative who needs transfusions on a regular basis several months apart
D. lacks blood proteins that are present in Rh- individuals

The next four items are designed to test your knowledge of the muscles of the human body. All of these items refer to the sketch below.



10. The muscle labeled "1" in the sketch is the:

A. triceps
B. deltoid
C. biceps
D. vastus lateralis

11. The muscle labled "2" in the sketch is the:

A. external oblique
B. pectoralis major
C. trapezius
D. gluteus maximus

12. The muscle labeled "3" in the sketch is the:

A. rectus abdominis
B. latissimus dorsi
C. flexor digitorium
D. gastrocnemius

13. The muscle labled "4" in the sketch is the:

A. gastrocnemius
B. achilles' tendon
C. sternomastoid
D. vastus lateralis

14. The longest and strongest bone in the human skeleton is the:

A. humerus
B. tibia
C. clavicle
D. femur

15. The most plentiful gas in the air we inhale is:

A. oxygen
B. hydrogen
C. carbon dioxide
D. nitrogen

16. Which of the following is not part of the excretory system?

A. skin
B. urethra
C. liver
D. bronchi

17. The image formed by the lens of the eye is focused upon the:

A. cornea
B. iris
C. retina
D. conjuctiva

18. The process of ossification is important in the formation of;

A. nerve tissue
B. proteins
C. bones
D. white blood cells

19. Which of the following is part of both the respiratory and digestive system?

A. pharynx
B. trachea
C. esophagus
D. alveolus

20. When we inhale we:

A. relax the muscles used in breathing
B. use muscles to increase the volume of the thoracic cavity
C. use muscles to decrease the volume of the thoracic cavity
D. use muscles to increase the pressure within the thoracic cavity

21. The elbow is an example of a/an:

A. pivot joint
B. ball and socket joint
C. gliding joint
D. saddle joint

22. Frequent exercise will increase the size of the muscles being used. This happens because:

    A. the stimulation causes a large number of new muscle cells to form
    B. the amount of cytoplasm in individual muscle cells is increased
    C. fluid collects between the muscle fibers
    D. the blood flow to the muscles is maintained at a higher level

23. Smooth muscle cells are found in:

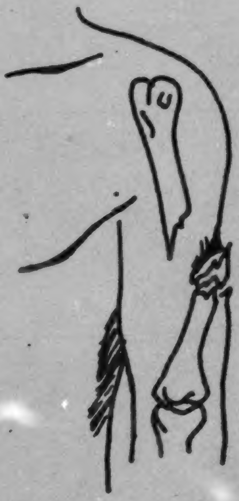
    A. the triceps
    B. the heart
    C. the ligaments
    D. the walls of the aorta

24. Which of the following is largely composed of connective tissue?

    A. cartilage
    B. the pectoralis major
    C. the cerebrum
    D. the skin

25. The fracture illustrated should be classified as:

    A. greenstick
    B. compound
    C. simple
    D. comminuted



26. The human eye adjusts to change in distances of objects by:

    A. changing the thickness of the lens
    B. changing the opening of the iris
    C. forming additional visual purple
    D. changing the shape of the rods and cones

27. Looking directly at approaching headlights while driving at night causes:

    A. bleaching of visual purple and loss of visual sensitivity
    B. the lens of the eye to open wide allowing too much light to enter
    C. damage to the optic nerve and a slight loss of vision
    D. damage to the fovea, making its rods ineffective

28. Which of the following is a grouping which includes the others?

    A. organ
    B. tissue
    C. system
    D. cell

29. Of the following, the best source of protein is:

    A. oranges
    B. fish
    C. green beans
    D. raisins

30. Proteins are built of smaller units called:

    A. amino acids
    B. lipids
    C. fatty acids
    D. monssaccharides

31. Which food contains the largest proportion of carbohydrate?

    A. apples
    B. bacon
    C. eggs
    D. fish

32. An adequate but not excessive caloric intake for an average person twelve years of age or older is roughly:

    A. 100 cal.
    B. 1100 cal.
    C. 2400 cal.
    D. 4000 cal.

33. Niacin is a/an:

    A. enzyme
    B. vitamin
    C. hormone
    D. none of the above

34. The vitamin most directly associated with good vision is:

    A. vitamin A
    B. vitamin K
    C. vitamin C
    D. vitamin D

25. Injection of living or dead microorganisms to protect an individual against disease is called:

    A. neutralization
    B. passive immunization
    C. phagocytosis
    D. vaccination

36. Boiling will not kill:

    A. bacteria
    B. fungi
    C. protozoans
    D. bacterial spores

37. Active immunity to a disease is acquired by:

    A. being born of an immune mother
    B. being innoculated with an antigen
    C. being innoculated with an anitbody
    D. being innoculated with an antitoxin

38. In response to injury the body does not:

    A. increase the output of urine
    B. increase the amount of blood to the area
    C. increase the body temperature
    D. increase sensory reception of pain

39. In the days of exploration and settlement by Europeans, entire Indian villages were wiped out by diseases that would have produced only mild illness in the Europeans. The best explanation is that:

A. differences in genetic make-up caused the Indians to react more violently than whites
B. the Europeans' blood contained antibodies not present in the blood of the Indians
C. the Indians were less resistent to disease due to poorer diet.
D. antibiotics used by the Europeans were not available to the Indians

40. If the ability of an individual to produce acetylchloline were blocked he would:

A. not be able to digest fats
B. become anemic
C. not be able to utilize vitamin C
D. would not be able to contract voluntary muscles

41. Which is the correct sequence of flow for blood entering the heart from the superior or inferior vena cava?

A. right ventricle, left ventricle, pulmonary artery, pulmonary vein, right atrium, left atrium, aorta
B. right atrium, right ventricle, pulmonary artery, pulmonary vein, left atrium, left ventricle, aorta.
C. left ventricle, left atrium, pulmonary artery, pulmonary vein, right ventricle, right atrium, aorta
D. none of the above

42. The primary function of the lens of the eye is to:

A. converge rays of light
B. distinguish colors
C. protect the cornea from foreign particles
D. adjust the amount of light entering

43. Which of the following is not normally found in the urine?

A. ammonia
B. phosphates
C. proteins
D. creatinine

44. If blood from a subject clumps in both anti-A serum and anti-B serum, the blood type of the subject is:

A. A
B. B
C. O
D. AB

45. The device used in making a finger puncture is called a/an:

A. hemacytometer
B. hemalet
C. hydrometer
D. chromatograph

46. In an untreated diabetic:

A. fats and proteins are utilized as a source of energy rather than glucose
B. acetone is absent in the urine
C. too much insulin is produced
D. the kidneys cannot remove glucose from the bood stream

47. When taking the wrist pulse one:

A. feels the surge of blood through a vein
B. feels the movement of blood through the capillaries
C. presses an artery against firm tissue such as bone
D. times ten beats and calculates the pulse rate

48. A pulse rate of 130 beats/minutes for a 16 year old male sitting quietly is:

A. about normal
B. higher than would be anticipated
C. slightly lower than would be anticipated
D. much lower than would be expected

49. When taking blood pressue inflation of the cuff should cease shortly after:

A. the arterial heartbeat can no longer be heard
B. the patient can no longer make a fist
C. the mercury column begins to descend
D. the arterial heartbeat becomes very loud

50. Dipping testing tape and comparing the color changes to a color chart is a common test indicating:

A. the presence of the Rh factor
B. the amount of glucose in the urine
C. the amount of urea in the urine
D. the percentage of hemoglobin in the blood

51. Which of the following is true if the blood pressure of an individual is 100/80?

A. When the heart relaxes the blood pressue is 80mm Hg.
B. The systolic pressure is above the normal range for young adults
C. The diastolic pressure is abnormally low for a young adult
D. When the heart contracts the blood pressure is 80mm Hg.

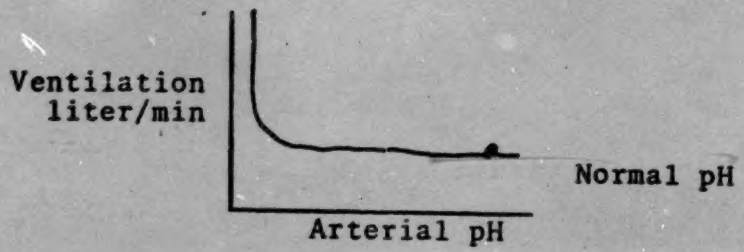
52. Which of the following does NOT affect body temperature?

A. the time of day
B. physical exercise
C. progression through the menstrual cycle
D. hyperopia

53. Which of the following is true of phagocytes?

A. Phagocytes are the only blood contituents produced in the bone marrow
B. Phagocytes are able to pass through the pores of capillaries
C. Phagocytes contain large quantities of hemoglobin
D. Phagocytes contain antibodies which combat disease

54. Which of the following is a correct interpretation of the graph shown below?



A. an increase in blood acidity is associated with a larger volume of air moving through the lungs
B. a decrease in blood acidity causes an increase in the volume of air moving through the lungs
C. a small increase in pH will lead to a large increase in ventilation
D. none of the above

55. When treating a person for shock one should:

A. give the person a small amount of alcohol
B. elevate the head
C. keep the person awake
D. provide warmth

56. The first thing a person should do when examining a victim of an accident is:

A. send for a doctor and ambulance
B. check for respiratory failure
C. look for signs of excessive bleeding
D. treat for shock

57. The most important clue in recognizing that a person may be in danger of asphyxiation from choking on a morsel of food is:

A. the person coughs continuously
B. the person grasps his throat
C. the person cannot speak
D. the person turns red

A group of scientists studying monkeys in their native settings encamped in the jungle for several months. Before long, some monkeys accepted the scientists and visited them regularly for handouts since food was somewhat scarce. A few particularly friendly animals were even jokingly given names by the scientists who took advantage of the visits to carefully observe the monkeys. Data gathered on these occasions were included in their report and became the basis for generalizations about the social behavior of monkeys in their natural habitat.

58. Which of the following threatens the validity of the study?

A. the camp setting for the observations
B. reducing the need of the monkeys to compete for food
C. a non-representative sample of subjects
D. all of the above

59. The scientists believed that there might be a rigid social structure within groups of monekys. Initial observations indicated that each monkey "knew his place" and tended to be submissive toward monkeys of higher status.

Which of the following would be the most useful hypothesis statement for this study of social structure among the monkeys?

A. If a rigid social structure exists, each monkey "will know its place"
B. If a monkey has low status, it will exhibit submissive behavior
C. If a rigid social structure exists, the frequency with which monkeys submit to others will differ significantly among the monkeys.
D. If a monkey has low status, the observed frequency of submission will be greater than expected by chance alone.

60. Before beginning to take data for this study the most crucial task the scientists face is:

A. ordering and deploying the specialized equipment needed
B. establishing guidelines for determining whether observed behavior is agressive or submissive
C. conditioning the monkeys to make their visits at times convenient for observation
D. setting up rotating schedules for the scientists so that observation posts will be manned at all times.

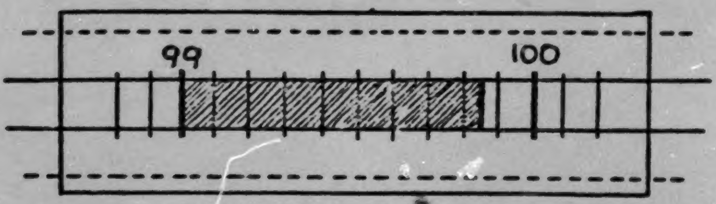
CHEMISTRY TEST
Pre-Postsecondary Program
Scarlet Oaks

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. Which of the following numbers contains the greatest number of significant figures.

   A. 221
   B. 0.0041
   C. 1.049
   D. 2100

2. The box below contains a sketch of the portion of the thermometer containing the top of the mercury column.



   Which of the following best expresses the temperature shown on the thermometer?

   A. 99.852°
   B. 99.80±0.05°
   C. 99.85±0.01°
   D. 99.950±0.001°

3. A centigrade temperature of 30° is equal to:

   A. 200°K
   B. 253°K
   C. 293°K
   D. none of the above

4. The formula $Al(NO_3)_3$ implies that:

   A. There are six times as many oxygen atoms as aluminum ions in $Al(NO_3)_3$
   B. The percentage by weight of nitrogen in $Al(NO_3)_3$ is three times that of aluminum
   C. There are three nitrogen atoms for every aluminum ion in $Al(NO_3)_3$.
   D. There is one nitrogen atom for every six oxygen atoms in $Al(NO_3)_3$

5. Ten centimeters is equal in length to:

   A. 100 millimeters
   B. 100 decimeters
   C. 10^{-3} meters
   D. 10^{-3} kilometers

6. Which of the following is NOT true?

   A. a mole of hydrogen-1 molecules always has the same mass
   B. a mole of hydrogen-1 molecules always occupies the same volume
   C. a mole of hydrogen-1 molecules always contains the same number of atoms
   D. a mole of hydrogen-1 gas always contains approximately 6×10^{23} molecules

7. When nitrogen is in its lowest energy state, the number of electrons in p-orbitals is:

   A. 0
   B. 1
   C. 2
   D. 3

8. Consider an atom with the electron configuration

   $$1s^2 2s^2 2p^6 3s^1$$

   Which of the following is FALSE?

   A. the atom has atomic number 11
   B. the atom is in an activated electron state
   C. the atom will tend to form +1 ions
   D. the atom will gain energy to change to $1s^2 2s^2 2p^2$

9. The correct electron dot symbol for calcium is:

A. $\cdot\overset{\cdot}{\underset{\cdot}{C}}\cdot$

B. $\underset{\cdot}{\mathrm{Ca}}\cdot$

C. Ca:

D. $:\overset{\cdot\cdot}{C}$

10. Chlorine ions have the same number of electrons as:

A. Ar atoms
B. Br ions
C. S atoms
D. Na atoms

11. Five moles of Na_2CO_3 contain:

A. five moles of oxygen atoms
B. ten moles of sodium
C. fifteen moles of CO^{-2} ions
D. fifteen moles of O_2 molecules

12. The gram formula weight for Na_2CO_3 is approximately

A. 130
B. 106
C. 73
D. none of the above

13. How many moles of Fe_2O_3 can be prepared by heating two moles of iron with an excess of oxygen?

A. .5 moles
B. 1 mole
C. 2 moles
D. none of the above

14. The noble gases:

A. are chemically very active
B. have high ionization energies
C. tend to gain electrons to form negative ions
D. form diatomic molecules

15. Which of the following would you expect to have properties most similar to those of Na?

A. K
B. Mg
C. C
D. I

16. Which halogen would you expect to have the largest atomic radius?

A. F
B. Cl
C. Br
D. I

17. When two solutions react to form an insoluble solid, the solid is called a/an:

A. oxide
B. carbonate
C. precipitate
D. oxidizing agent

18. The chemical reaction $A + B \rightarrow C \pm \text{heat}$ is called a/an:

A. endothermic reaction
B. displacement reaction
C. decompostion reaction
D. exothermic reaction

19. The amount of heat needed to warm one gram of water 1°C is:

A. one calorie
B. one ampere
C. one volt
D. one kilocalorie

20. The reaction $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_{2(g)}$ is classified as:

A. replacement
B. decomposition
C. ionic
D. composition

Use the solubility curve to the right to answer the next three items.

21. Increasing the temperature has the greatest effect on the solubility of:

    A. KI
    B. INO_3
    C. NaCl
    D. $NaNO_3$

22. At 50°C the concentration of a saturated $NaNO_3$ solution will be approximately:

    A. 150g $NaNO_3$/100g H_2O
    B. 72g $NaNO_3$/100g H_2O
    C. 115g $NaNO_3$/liter H_2O
    D. 1150g $NaNO_3$/liter H_2O

23. If 80g of KNO_3 are stirred into 100g of water at 40°C

    A. the KNO_3 will completely dissolve
    B. some of the KNO_3 will remain undissolved
    C. the solution will be supersaturated
    D. the solid will not be in equilibrium with the solution

24. The greater the difference in electronegativity of two atoms forming a bond:

    A. the more equally electrons will be shared
    B. the more nonpolar the bond
    C. the more ionic the bond
    D. the more evenly charge will be distributed after bonding

Items 25, 26, and 27 are questions about a compound of platimum and chlorine which consists of 42.1% chlorine

25. What is the number of moles of chlorine in 100g of the compound?

    A. 1.19
    B. 4.21
    C. 0.84
    D. none of the above

26. How many moles of chlorine are combined with one mole of platinum atoms?

    A. 1/4
    B. 2
    C. 1
    D. 4

27. What is the emperical formula for the compound?

    A. Pt_4Cl
    B. $PtCl_4$
    C. $PtCl$
    D. $PtCl_2$

28. Which of the following would have the slowest rate of diffusion?

    A. ink through water
    B. solid gold into solid lead
    C. water vapor into air
    D. carbon dioxide into water

29. Natural processes tend to favor a state of:

    A. higher entropy and lower energy
    B. higher entropy and higher energy
    C. lower entropy and lower energy
    D. lower entropy and higher energy

30. What is the hyroxide ion concentration in a solution of .1 HNO_3?

    A. .1M
    B. 10^{-6}M
    C. 10^{-13}M
    D. none of the above

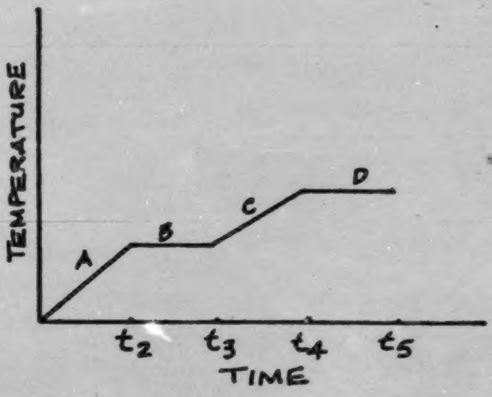
31. Which of the following pH reading indicates a strongly acidic solution?

A. 1.6
B. 7.2
C. 6.9
D. 10.4

32. A conjugate base is:

A. the species to which an acid gives up a proton
B. the species formed when a base takes on a proton
C. the species that remains after an acid gives up a proton
D. the species which gives up a proton to form the conjugate acid

The diagram below summarizes the data obtained when the temperature is taken at regular intervals as heat is added to a solid below its melting point. Use the diagram to answer the next three items.



33. At which time would you expect the sample to have begun to boil?

A. t_2
B. t_3
C. t_4
D. t_5

34. In which portion of the curve do molecules have the highest average knetic energy?

A. A
B. B
C. C
D. D

35. In which part of the graph are both liquid and solid present?

A. A
B. B
C. C
D. D

36. How many molecules of oxygen are present in one liter of the gas at STP?

A. 6.02×10^{23}
B. 2.68×10^{22}
C. 3.76×10^{22}
D. none of the above

37. Addition of a non volatile solute to water leads to:

A. a lower meling point
B. a higher melting point
C. a lower boiling point
D. a higher vapor pressure

38. Which of the following substances forms a molecular solid made up of polar molecules?

A. potassium hydroxide
B. carbon tetrachloride
C. sodium chloride
D. water

39. A closed vessel contains equal numbers of oxygen and helium molecules. The pressure is 760mm and the volume is 20 liters. Which of the following is NOT true?

A. the average kinetic energy is the same for the oxygen molecules and helium molecules
B. the average speed of the helium molecules is greater than that of the oxygen molecules
C. if the helium could be removed from the sytem the pressure would drop to 190mm.
D. the number of oxygen atoms present is twice the number of helium atoms

40. A student collects a 250ml smaple of hydrogen over water at 18.5°C. The vapor pressure of water at this temperature is 16mm. If atmosphere pressue is 756mm, what is the partial pressue of hydrogen in the collection vessel?

A. 740mm
B. 756mm
C. 772mm
D. none of the above

CAREER TEST
SCARLET OAKS

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary health program. Through these experiences you have met a variety of health professionals. List the occupational titles of the professionals with whom you spent at least one (1) hour. Examples: public health nurse, laboratory technician, etc.

____

____

____

____

____

____

____

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.

Ten or More Hours of Meeting Time	Less Than Ten Hours of Meeting Time
______________	______________
______________	______________
______________	______________
______________	______________
______________	______________

3. Read the four statements below and circle the one which best describes your feelings about a health career at the time you decided to enter the pre-postsecondary health program.

   A. I had identified a particular health occupation as a fairly definite goal
   B. I had a definite interest in a health career, but was undecided what occupation to consider
   C. I thought I might be interested in a health career and wanted to learn more about the health field
   D. I wasn't particularly interested in a health career, but several other features of the program were attrative to me

4. Respond to question 4 ONLY if you selected STATEMENT "A" in the last item. The occupation I had in mind as I began the program was ______________________________.

5. Read the next four statements and circle the one that best applies to your AT THIS TIME.

   A. I have identified a particular health occupation as a fairly definite goal.
   B. I have a definite interest in a health career but I am still undecided which occupation to select as a goal
   C. I am still considering a health occupation, but I am also interested in several careers that are not health related
   D. I am not seriously considering a health career

Respond to question 6 a, b, c ONLY if you selected STATEMENT "A" in item 5

6a. The occupation I have identified is ____________________.

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

____

____

____

____

____

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

Answer question 7 a, b ONLY if you selected STATEMENTS "B" or "C" in item 6

7a. Which health occupations are you considering?

7b. Choose ONE of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

8. Read the following statements and circle the one which best describes how your interest in a health career has changed while you have been in the program.

A. My interest in a health career has increased
B. My interest in a health career has remained about the sam
C. My interest in a health career has decreased

Answer the following open-ended questions as completely as possible.

9. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of health careers.

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in health? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a health career. Describe some of these topics or activities and explain how they have affected your understanding of health career.

STUDENTS' ANSWERS TO QUESTIONS 1, 2, 4, 6, 7, 9, and 10

of the SCARLET OAKS CAREER TEST

1. List the occupational titles of the professionals with whom you spent at least one hour. Examples: public health nurse, laboratory technician, ect.

A dentist, Tour of Christ Hospital, Tour of Longview, Planned Parenthood Right to Life, CTC, Tour of Zoo, Dr. Heargrin (Vet), Miami University, Kettering Lab, Camp Stepping Stones, Alcoholics Anonymous , SPCA, Lots more but not enough space.

Shriner's Burns Inst., Dentist, Tour of Longview, Right to Life, CTC, Zoo, Dr. Heagrin (VET), Camp Stepping Stone, SPCA, Miami U., Kettering Lab, Alcholism Speaker, Dee Starr from A-A, Jewish Hospital, General Hospital, Teen Challenge, Blue Cross, Special Ed., Training Center, Long Branch Farms.

Shriner's Burn Institute, Tour of Christ Hospital and speaker, Tour of Longview, Speaker from Planned Parenthood, Right to Life, CTC, Zoo, Dr. Heagrin (vet), Camp Stepping Stones, Miami University, Kettering Lab, Jewish Hospital, SPCP, Long Branch Farm...many others...

A dentist, Tour of Christ Hospital and speaker, Tour of Longview, Speaker from Planned Parenthood, Right to Life, CTC, Zoo, Dr. Heagrin(Vet), Camp Stepping Stone, Miami University, Kettering Lab, Speaker of Alcoholism. Dee Starr from Alcoholics Anonymous, Director from Health Careers Center,Blue Cross, Jewish Hospital, SPCA.

Shriner Burns Inst., Clermont Special Ed., Natural History Museum, Planned Parenthood, Drug Addict, Jewish Hopital, SPCA. Kettering Lab, many more.

Field trip to Stepping Stones, Shriners Burns Institute, Jewish Hospital School of Nursing, Miami University, Miss Haggard (assistant Dean of Raymond} Walters College, (more but no room).

Laboratory technologist, Nurses, Director of Health Careers, Dentist, Veterinarian, Physicians Assistant, Assistant Dean, Health Maintanance Director, Special Education Teachers, Gynecologist, Psychologist.

Dentist-Cincy Zoo, CTC-S Miami U., Planned Parenthood, Right to Life, Natural History Museum, AA's, Edgecliff Christ Hospital, Raymond Walters, Sem Villa, Blue Cross, Jewish Hospital, Shrines Hospital, Clemont Special Education Classes, Longbranch Farm, General Hospital, Longview, Teen Challenge, Stepping Stones.

Dr. Heagrin, veterinarian , Kettering Lab, Right to Life, A.A., Zoo Keeper, Teen Challenge, Marriage Counselors, Planned Parenthood, Long Branch Farm, Clermont Special Education, Cincinnati Technical College, Raymond Walter, Edgecliff-Christ, Jewish Hospital, Shriners Burns Inst., SPCA.

2. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.
Ten or More Hours of Meeting Time.

Dr. Heagran Vet. 40 hours, Cincinnati Zoo 80 hours.

General Hospital 68 hours, Jewish Hospital 43 hours,
Now I'm an orderly at Daniel Drake Memorial Hospital.

No Comment.

Physical Therapy Dept General Hospital 50+hours, Longview 50+hours, Clermont County Special Education Training Center 50+hours.

General Hospital 44 hours, Longview, Jewish Hospital.

Animal Technicians, Zookeeper, Social Workers, Animal Care-Farming.

No Comment.

Laboratory Tech., Nurses, Special Education Teachers.

General Hospital 50 hours, Longview Mental Hospital 50+hours, Cincinnati Zoo 50+.

General Hospital, Jewish Hospital.

Less Than Ten Hours of Meeting Time.

Christ Hospital, Longview, Kettering Lab, SPCA, Special Education Center.

All of questions 1.

No Comment.

Kettering Lab 3 hours, Christ Hospital, Dr. Heagrin, Camp Steppin Stone, SPCA.

All of question 1.

Dietician, Special Teachers, Nurse, Doctor, All Area's of Hospital Staff, Psychiatrists.

All.

Director Health Careers, Dentist, Physicians Assistant, Health Maintanance Dir., Gynecology , Psychologist.

All the above which is started we spent less than 10 hours.

4. Respond to question 4 ONLY if you selected STATEMENT "A" in the last item. The occupation I had in mind as I began the program was

M.D.

Physical Therapy.

R.N.

Animal Care.

Animal Care Technician.

Medical Laboratory Technologist.

R.N.

Nursing (R.N.)

6A. The occupation I have identified is

Physicaian.

Physician Assistant.

Physical Education, Special Education.

Medical Secretary.

Art.

Animal Care Technician.

Medical Lab Technologist.

R.N.

Nursing.

6B. After graduation from high school, what training will be necessary before you are able to enter this occupation?

No Comment

Four years of Nursing School-Then either Anesthetics or P.A. (post-graduate)

Four years of college at Eastern Kentucky University.

Two years at University of Cincinnati in University College.

Two year Art School.

Two years at a junior college.

I only need to go to a four year bachelor program. But I'm going to go to a two year program and get my associates degree and then go for about 2-3 more years while working and get my bachelors.

Nursing School-I'm going into a three year program.

Before I enter, I am going to work hopefully as a Nurse Attendant to get more experience and money. Then I will apply for a two year training course for R.N's (Maybe a three year depending on school).

No Comment.

Four years of Arts and Sciences. Four years of Medical School. One year Intern. One year Resident.

6C. Name three institutions that offer program suitable for the phase of your training which will immediately follow high school.

Raymond Walters College (the only one in the state of Ohio)

Gebhart Art School. Gable Art School. Mt. St. Joe.

Cincinnati Technical College. University of Cincinnati. Southern Ohio College.

Eastern Kentucky University. Alderson-Broaddus University, Miami University.

University of Cincinnati, Jewish School of Nursing, Bethesda School of Nursing.

U of C, OSU, Edgecliff.

Christ, Jewish Bethesda Hospitals.

Good Sam Hospital, Ohio State, University of Cincinnati.

CTC, Sinclair, Raymond Walters, U.C.

Agricultural Technical Institute.

7A. Which health occupations are you considering?

Vet.

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

Medical school, only after Nursing School. Possible Emergency Room Work.

No Comment.

No Comment.

7B. Choose One of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

No Comment.

No Comment.

No Comment.

Medical School-four years. Pre-Med with bachelors degree in science then Medical School, then Residency and Internship.

No Comment.

No Comment.

No Comment.

Bachelor of Science Post Graduate.

9. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of health careers.

At the Vet. Hospital it increased my interest in the Health Occupation by seeing just what you have to do in this field. Plus there is an awful lot of money in Vet. Medicine. I have found out that if you take care of everybody and every thing there will be more happy people in the world.

What I mainly got out of my experiences was that through my contact with Shriner's burns, working at Longview Mental Hospital and at General Hospital working in O.T.I. found out I can not work with these type of people. But then at General Hospital I also worked with children and this is what I'm planning on going into.

Working with MLT's showed me the routine that I'd be in. I know what is expected of me and I can do it. I know that I want to help people but I don't want to see them suffer much. I can take blood and other specimens and run tests and it won't bother me. I know that a nurse pulls a better salary but my experience with nurses has shown me that their occupation is not for me. I love the atmosphere of a lab I am sure I won't have any trouble.

By working in a hospital, it helped me to understand the responsibilities of a nurese. It helped me decide if I could take that kind of work. When I worked at General, I had to feed a badly burned patient.. I figured if I could take that I could take any thing. At Jewish I had to sit with a women who just got out of surgery (cataract removed)and fill. These things helped influence me to keep up with a health profession.

I found that I love hospital work and I'm now pursuing my life's goal even harder than before. I now realize the time and effort involved. But I'm glad I found out now before it was too late.

I discovered I could not work in physical therapy for eight hours a day six days a week. I couldn't handle it. I have always been interested in physical education and I'm interest in working in special education. I also discovered I couldn't work at Longview Mental Hospital. I'm too emotionally involved.

When I was at General Hospital I met nurses who told me their salaries (only when asked). I also got a pretty good idea of a typical day for a nurse. I also met a pre-med student. He told me of how much he had to study everyday (8 hours). This was not for me. At school I heard about Physicians Assistants and became interested. When I investigated this at the Health Careers office in Cincinnati. With information provided by my co-ordinator and by the Health Careers Office, I decided to become an RN. After getting a Bachelor's degree in Nursing I will go on for more training.

I found out I could never be a nurse. I'm just not cut out for it. But I still want to go into a health career because I want to do something to help people.

I was not sure I could take the blood and guts nor was I sure that it was really what I wanted to do I learned that I could take the blood and guts. I learned this through working at a veterinarian animal hospital. I have put hot packs on dogs, assisted on autopsies watched surgery, helped restrain animals during different procedures, given pills, held off veins for hyperdermic needles, assisted during intervenous feedings.

I have learned all about my interests. I have changed my goal but I have not lost interest in that area. I learned through a trip to Kettering Lab. I had contact with Vets and knowledge of Raymond Walters program that I wouldn't be happy in the career I had considered. I have learned what happens in health professions first hand. I couldn't attempt to be specific in this space but my field experiences are adequate to explain. I know this fall had I not got into this program I would have been at Raymond Walters wasting money in something that was wrong for me.

10. In what ways have classroom or laboratory based learning influenced your interest in a future career in health? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a health career. Describe some of these topics or activities and explain how they have affected your understanding of health career.

No Comment

Most of the influence came from field trips. The amount of hard study prepared me for this.

By working with aids and studying the body in depth I have found the body interests me and enjoy looking into it. Also in Micro-biology I know I could never sit around looking at slides all day. I've gotten a great deal out of this program. I wish I could write what I felt but I'm at a loss for words.

I have found out how hard the health field is and it takes a lot of hours studying. We have disected baby pigs hearts, kidneys, and brains. Seeing things that are real and not plastic help show more things the way they are.

Working with microscopes and slides turned me against micro biology. I like disecting and active experiments. We also study Value Clarifications and Physchology which is good for working with people.

I learned that I can disect without getting squemish. I also learned during chemistry lab I can do some lab work.

I liked all the classes but I don't know if I changed my mind about my career because of them. I think I changed my mind because of the field trips..

I don't believe the classroom laboratory based learnings have influenced my interest in a future career in health in any way.

Micro biology really sparked my interest. I was seeing in school what I was doing at the hospital. The rest of the classes were really just fun I guess. They lead to other interests and tied into health but weren't really right on. Medical

Lab Technology. I didn't expect them to be.

The main things are the subjects we studied. I love Biology, Anatomy, and Physiology. I also liked to disect. We disected hearts, brains embryo pigs, eyes, lungs, etc. We did a little micro biology and study diseases which I really liked. I hate things like typing or shorthand, so I decided this is what I like.

V

LIVE OAKS

PSYCHOLOGY TEST

1. Measurement and statistics are useful tools of the social sciences because they can be used to:

    A. prove that particular theories are true or false
    B. determine the amount of a trait different people possess
    C. assign grades to students in a relatively unbiased manner
    D. determine whether variation may be attributed to chance or not

2. What kind of pychologist works in the diagnosis and treatment of severe emotional disturbances?

    A. school pyschologist
    B. clinical psychologist
    C. experimental psychologist
    D. industrial psychologist

3. In the client-centered therapy developed by Carl R. Rogers the counselor

    A. looks within the client for the source of his emotional difficulties
    B. tries to help each client find more appropriate behavior
    C. is non-directive and allows the client to choose topics
    D. tells the client, after intensive questioning, and interpretations, what is preventing self-actualization

4. Which areas of the cerebral cortex are primarily involved in thought and memory?

    A. auditory areas
    B. visual areas
    C. association areas
    D. speech areas

5. Which area would an experimental psychologist be most likely to study?

   A. attitudes and beliefs
   B. theory of tests
   C. principles of learning, motivation, and perception
   D. personnel selection

6. The actions of the ________________ give rise to the excitement of emotion to large extent

   A. sympathetic nervous system
   B. peripheral nervous system
   C. endocrine glands
   D. parasympathetic nervous system

7. A nursery school teacher plans to train the young children at the school in climbing. This will:

   A. destroy the ordinary maturational sequence
   B. have no effect as compared with normal development
   C. produce personality disturbances
   D. not upset the normal developmental sequence

8. Dr. Amazing has mated rats with other rats which have similar maze learning scores. The results in offspring over several generations that Dr. Amazing should expect are:

   A. no difference in maze learning ability
   B. development of maze-bright and maze-dull strains
   C. development of neurotic and normal strains
   D. development of strains with high-general or low-general intelligence

9. Professor Smart finds that her students are having difficulty in finding the solution to a problem. The professor knows that problem solving can be impeded by:

   A. fixed functions of objects
   B. habitual solutions
   C. biases
   D. all of these

10. The best explanation of hearing that Dr. Smart could give her class would be:

    A. the place theory
    B. the telephone theory
    C. the volley theory
    D. a combination of 1, 2, and 3

11. When Dr. Smart talks about "perception" she is referring to:

    A. sensing the environment
    B. taking in the physical energies of stimuli
    C. seeing the environment in an organized way
    D. the appearance of contour man homogeneous field

12. Dr. Smart would call a balance in bodily processes:

    A. drive
    B. motive
    C. discomfort
    D. homeostasis

13. In Maslow's hierarchy of motives the one on top is

    A. physiological
    B. instincts
    C. anxiety
    D. self-actualization

14. Which of these is the topic of the lecture when Dr. Smart is discussing the motivating effects of inconsistencies among our cognitions?

    A. cognitive dissonance
    B. hierarchy of motives
    C. Freudian theory
    D. homeostasis

15. Dr. Smart would say that individual differences result when:

    A. a person differs over time in his own performances
    B. there are differences among people
    C. there is intraindividual variability
    D. when we use statistics

16. A standard situation in which a pyschologist observes and measures behavior is:

    A. a test
    B. a norm
    C. a distribution
    D. a trait

17. The tally Dr. Smart keeps of how many times each score occurred in a sample is called:

    A. a measure of central tendency
    B. the range
    C. a frequency distribution
    D. a normal curve

18. To see if there is a relationship between scores on two of the tests she has given Dr. Smart would use:

    A. means and medians
    B. the range
    C. standard scores and percentiles
    D. correlation

19. The correct order of Freud's psychosexual stages of development is:

    A. oral, phallic, anal, and genital
    B. anal, oral, phallic, and genital
    C. genital, phallic, anal, and oral
    D. oral, anal, phallic, and genital

20. Dr. I. Que is comparing intelligence scores. Dr. Que can expect to find the most similar scores for which combination?

    A. fraternal twins
    B. foster children and their foster parents
    C. identical twins
    D. foster children and their biological parents

21. Freud attributed mental illness and personality disorders to:

    A. development of an oedipus complex
    B. events in the anal stage
    C. fixation at a sexual stage of development
    D. events in the latency stage

22. Learning, defined as a relatively permanent change in behavior is caused by:

    A. motivation
    B. maturation
    C. changes in receptor sensitivity
    D. practice

23. Dr. Hide has been training animals to do tricks. In Dr. Hide's technique the animal's response produces the reinforcement. What technique is Dr. Hide using?

    A. operant conditioning
    B. classical conditioning
    C. Pavlovian conditioning
    D. classical oversive conditioning

24. Dr. Hide expects that partial or intermittent reinforcement will:

    A. accelerate conditioning
    B. retard extinction
    C. accelerate extinction
    D. produce generalization

25. Dr. Hide should find that very high response rates are developed by:

    A. continuous reinforcement
    B. interval schedules
    C. ratio schedules
    D. spontaneous recovery

SOCIAL PSYCHOLOGY TEST

26. As part of the training Dr. Hide will use shaping procedures. These resemble:

A. secondary reinforcement
B. classical aversive conditioning
C. classical conditioning
D. trail and error in maze and puzzle box learning

27. The set of behaviors considered appropriate for a person in a given position is called a:

A. norm
B. trip
C. role
D. group

28. Which of the following is NOT a function of society?

A. socialize the young
B. develop flexible responses to changing mores
C. regulate emotional expression
D. provide shared goals

29. A person who follows the advice "when in Rome, do as the Romans" (but continues to think his own way) is practicing:

A. true conformity
B. counterconformity
C. expedient conformity
D. independence

30. Aristotle Jones not only THINKS all women are inferior to men but FEELS strongly about this as well. He can be best described as having:

A. an individual difference
B. an effective cognition
C. a balanced theory
D. an attitude

31. Aristotle gets a job working for a woman of obviously superior ability. According to one theory, Aristotle will be experiencing cognitive:

A. dissonance
B. change
C. attrition
D. decomposition

LIVE OAKS

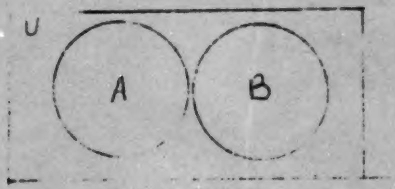
SETS AND PROBABILITY TEST

32. The set of possible outcomes when an unbiased die is tossed:

- A. A, B, C, D, E, F
- B. 1, 3, 5, 7, 9, 11
- C. 1, 2, 3, 4, 5, 6
- D. 1, 2, 3, 4

33. This Venn diagram represents which of the following relationships?

u = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}



- A. A = {1, 2, 3, 4,} B = {4, 5}
- B. A = {1, 3, 5, 7, 9} B = {2, 4, 6, 8, 10}
- C. A = {1, 3, 5,} B = {2, 4, 6}
- D. A = {6, 9, 11} B = {5, 4, 12}

34. If A = {1, 2, 3, 4, 5} and B = {3, 4, 5, 6, 7} and $A \cap B = C$ then:

- A. C = {3, 4, 5}
- B. C = {1, 2, 3, 4, 5, 6, 7}
- C. C = {1, 2}
- D. C = {6, 7}

35. The null or empty set is represented by which symbol:

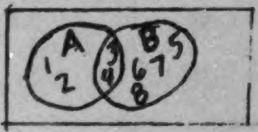
- A. ϒ
- B. χ
- C. ρ
- D. ∅

36. The sample space for the toss of a single die is 1, 2, 3, 4, 5, 6 assuming that the die is "fair" or "unbiased" the probability of getting an even number as the outcome is:

- A. 1/6
- B. 2/6
- C. 1/3
- D. 3/6

37. If A = (1, 2, 3, 4) and B = (3, 4, 5, 6, 7, 8) does this diagram illustrate the relation A∩B?

Yes ____
No ____



38. If A = {10, 12, 14} and B = {11, 13, 15} and A∪B = C then

A. C = {∅}
B. C = {9, 10, 11, 12, 13, 14, 15}
C. C = {10, 15}
D. C = {10, 11, 12, 13, 14, 15}

39. If u = {1, 2, 3, 4, 5, 6} and A = {1, 2, 3, 4} then the complement of A or $\bar{A}$ is the set:

A. {5,6}
B. {1, 2, 3, 4, 5, 6}
C. {1, 2, 3, 4}
D. {x, y}

40. A sample space is the set of all possible outcomes of an event. If two coins, a nickel and a dime are tossed which of the following is the sample space? (H means heads, T means tails)

A. {H, T}
B. {HH, TH, TT}
C. {HH, TH,HT, TT}
D. {HHT, TTH}

41. The sample space is made up of only two possible outcomes X and Y Event X and event Y are equally likely to happen. The correct symbolic representation of this is:

A. P(X) = 1 P(Y) =1
B. P(X) = .3 P(Y) = .3
C P(X) = .5 P(Y) = .5
D P(X) = ½ P(Y) = 1/3

LIVE OAKS

ECONOMICS TEST

42. The term which best characterizes the British economic policy at the time of the American Revolution is:

    A. industrialism
    B. capitalism
    C. mercantilism
    D. nationalism

43. The fourth stage in the evolution of the American economic system is:

    A. rural development
    B. modern industry
    C. urban economic life
    D. mercantilism

44. Which of the following does NOT characterize capitalism?

    A. wage and price controls
    B. competition
    C. profit motive
    D. private property

45. An example of an economic cartel in operation at the present time is:

    A. IBM (International Business Machines)
    B. ITT (International Telephone & Telegraph)
    C. OPEC (Organization of Petroleum Exporting Countries)
    D. NATO (North Atlantic Treaty Organization)
    E. OAS (Organization of American States)

46. Economic ____________ are satisfied through the production of economic ________________ which requires the use of ___________________.

    A. problems, results, muscle
    B. difficulties, solutions, cooperation
    C. needs, capital, machinery
    D. wants, goods, resources

47. Which of the following is an economic good, which until recently was free because of its abundancy but is in danger of having a price attached to it: a

    A. clean air
    B. farm labor
    C. electricity
    D. cooperation

48. Recently a group of cattle ranchers staged a protest at a Denver Supermarket, selling beef at prices below those in the store. Who do they think is getting a disproportionate amount of the consumer's dollar?

    A. produce clerks
    B. vegetable producers
    C. middlemen
    D. meat cutters union

49. Which of the following is NOT a disadvantage of specialization?

    A. monotony
    B. less careful use of tools & machinery
    C. skill development
    D. greater interdependence

50. Decisions about what is to be produced in a market economy are made by:

A. individual consumers alone
B. households and business concerns
C. government agencies
D. vote of citizens

51. In a planned economy decisions about what will be produced are made by:

A. the government
B. political vote
C. households
D. business conglomerates

52. In a market economy, if consumer's desire for bicyles increases and their desire for motorcycles decreases this will lead to:

A. a decrease in bicycle production
B. a rise in the price of motorcycles
C. an increase in motorcycle production
D. a rise in the price of bicycles

53. The phrase "capital consumption allowance" refers to:

A. indirect business taxes
B. depreciation of captial equipment
C. personal consumption expenses
D. expenditures on capital equipment

54. According to the law of demand:

A. price and quantity demanded are inversely related
B. consumers will buy more of a product, the higher the price
C. the number of units of a product demanded is solely a function of consumers' taste
D. quantity of a product demanded is a result of consumer's income

55. An increase in the supply of wheat will probably:

A. increase the demand for oats
B. reduce the price of wheat
C. reduce the demand for wheat
D. increase the price of oats

56. In a competititve market price is a function of:

A. the supply of a good
B. consumers' tastes
C. the cost of producing the good
D. interaction of demand and supply

57. Which of the factors listed below does not affect the position of the demand curve?

A. buyers' income
B. price of other products
C. buyer's tastes
D. the supply curve

58. A definition of "circular flow of income" is:

A. sum of all additions into the system
B. flow of income between households and businesses
C. sum of all withdrawals from the system
D. amount of cost in the economy

59. The cause of inflation (an upward movement in the price level) could be:

A. rise in total demand beyond capacity to produce
B. decrease in expenditures by the federal government
C. increase in workers' productivity
D. unemployment

60. The component of total spending with the widest fluctuation is:

A. government spending
B. capital goods spending
C. spending by consumers on nondurable goods
D. business spending for wages and salaries

61. The largest category of bank assests is:

A. loans
B. demand deposits
C. time deposits
D. cash

62. An advantage of monetary policy compared to fiscal policy would be:

A. the effects of monetary policy are not the same throughout the economy
B. decisions on monetary policy can be reached and applied rapidly
C. monetary policy is most effective in times of recession
D. the effects of monetary policy are most predictable

LIVE OAKS

PERSONALITY THEORIES TEST

63. Of the systems that make up the personality in Freud's theory, which prompts the person to strive for perfection?

    A. ego
    B. id
    C. libido
    D. superego

64. According to Freud, the source of an instinct is:

    A. stimulation from the environment
    B. early training by the mother
    C. body conditioning or need
    D. imprinting

65. Tim is very afraid of a bigger boy who bullies all the children on the playground. Tim begins to dress like this boy, walk with the same swagger and treat those children even smaller than himself in a mean way. Tim is engaged in:

    A. object displacement
    B. narcissistic identification
    C. reaction formation
    D. defense identification

66. After successfully cheating on an exam and getting a good grade Jane has no fears of being caught, but she might be experiencing:

    A. projection
    B. moral anxiety
    C. oral fixation
    D. neurotic anxiety

67. A person who is very clever with words but uses this skill to produce sarcastic comments might be said to be exhibiting ________________ aggression.

A. oral
B. anal
C. phallic
D. genital

68. Jung's belief in the collective unconscious (store of memories and behaviors inherited from our ancestral past) is an example of:

A. empiricism
B. behaviorism
C. nativism
D. machronism

69. According to Jung, if a person has unequally developed attitudes or functions the ______________ principle comes into operation.

A. archtype
B. compensation
C. introversion-extraversion
D. transcendent

70. Jung say human behavior as determined by ________________ as well as by events in an individual's childhood:

A. events in the current external environment
B. learning in therapeutic situations such as psychoanalysis
C. reinforcements obtained from the present interpersonal environment
D. events occuring in humanity's past

71. Adler believed that _____________ forces play as important a role as ___________________ forces in the development of personality.

A. social instinctual
B. sexual aggressive
C. political familial
D. compensatory aggressive

72. The complex that figures most heavily in Adler's theory of personality is the: _______________ complex

A. inferiority
B. electra
C. oedipus
D. superiority

73. According to personality theorist Harry Stack Sullivan, an individual passes through seven developmental steps in growing to adulthood. Which of the following is NOT one of Sullivan's steps?

A. malevolent transformation
B. gender identification
C. early adolescence
D. infancy

74. Sullivan believed that personality:

A. can not be conceived of separate from interpersonal relationships
B. does not change after the final developmental step
C. is the expression of inner qualities possessed at birth
D. is unaffected by biological factors

75. Henry Murray is most noted for his work in the theory of:

A. aggression
B. social learning
C. motivation
D. animal learning

76. Three concepts important in Murray's theory are:

A. heredity, need, ego
B. need, thema, press
C. need, self, growth
D. awareness, environment, behavior

77. Tom is always taking care of people, animals and plants, encouraging their growth. Allport would say that nurturance was one of Tom's:

A. drives
B. needs
C. central traits
D. problems

78. Jane originally worked hard at school to please her parents. Now that she's away in graduate school she continues to work hard even though her parents have no idea what she's doing. Allport might say that Jane's academic habits are:

A. an example of the Puritan work ethic
B. the result of a strong super ego
C. over-compensating
D. functionally autonomous

79. Carl Rogers sees the source of maladjustment as:

- A. denial of too many sensory or emotional experiences
- B. injuries to the id, unrepaired by the ego
- C. unconditional positive regard
- D. self-actualization gone astray

80. Maslow's theory of motivation involves ______________ and ____________ needs.

- A. animal human
- B. basic meta
- C. heirarchical superior
- D. early nature

81. Which of the following is not a characteristic of Maslow's self-actualizing person?

- A. spontaneity
- B. self-acceptance
- C. realistically oriented
- D. superficial

82. According to Kelley the most important part of personality it:

- A. cognition (knowing)
- B. affiliation (interpersonal success)
- C. achievement (success in the environment)
- D. sexuality (erotic drives)

83. B.F. Skinner claims to have no theory of personality but has studied principles of learning which he feels govern all behavior. Which of the following is not a learning principle?

- A. punishment
- B. thematic apperception
- C. extinction
- D. spontaneous recovery

84. The theorist who elaborated Freud's psychosexual theory of development into a psychosocial theory with eight stages of crisis was:

A. Kelley
B. Erikson
C. Gestalt
D. Jung

85. Robert White's theory of motivation involves _____________ as a major driving force of behavior.

A. motivation
B. tension reduction
C. ability
D. competence

86. Erich Fromm's sociological approach to personality theory, does NOT include a need for:

A. variety of experience
B. sense of personal identity
C. relatedness
D. rootedness

LIVE OAKS

LAW TEST

87. Mr. Filthy Lucre has been accused of embezzling $25,000 by his employer. The case will be tried in:

    A. Probate Court
    B. Court of Common Pleas
    C. County Court
    D. Juvenile Court

88. If Mr. Lucre is found guilty his first appeal would be to:

    A. United States District Court
    B. Supreme Court of Ohio
    C. Circuit Court of Appeals
    D. Court of Appeals

89. The judges of this appellate court would primarily base their decision on:

    A. the occurence of errors of law during Mr. Lucre's trial
    B. the guilt or innocence of Mr. Lucre
    C. the evidence marshalled by Mr. Lucre's attorney
    D. the political affiliation of the prosecuting attorney

90. If Mr. Lucre were f[illegible] innocent the prosecuting attorney (representing the "state") could [illegible] appeal this decision to a higher court because a new trial would a[illegible] to:

A. a mandamus situation
B. a directed verdict situation
C. a double jeopardy situation
D. an indictment situation

91. The traditional function of grand jury has been to:

A. investigate corruption in governmental departments
B. determine if there is sufficient evidence for indictments
C. oversee the election procedure
D. decide the guilt or innocence of politicians

92. A "true bill" is the same as:

A. a breach of contract
B. a cognovit note
C. a tort
D. an indictment

93. Which of the following groups is not automatically excluded from jury duty in most jurisdictions?

- A. lawyers
- B. engineers
- C. teachers
- D. clergymen

94. In a civil case the ____________ must prove his case by a preponderance of the evidence.

- A. plaintiff
- B. defendent
- C. judge
- D. district attorney

95. When John Doe was arrested on a felony charge he was informed of his rights including his right to remain silent. He has answered some questions, but doesn't want to answer any more. He may:

- A. call an attorney
- B. refuse to answer any more questions
- C. ask to have an attorney appointed for him
- D. all of the above

96. Flo and Eddy were a "liberated" married couple. Flo provided all the financial support for the family. Now Flo wants a divorce. Considering the legal duties of the husband the grounds for divorce that she would be most likely to choose would be:

- A. gross neglect of duty
- B. adultery
- C. extreme cruelty
- D. habitual drunkenness

97. Jack Rough, who just turned eighteen years old, has just driven into a parked car, causing expensive damage. "Too bad for me," he says, "I've reached the age of ____________."

- A. exemption
- B. doom and disaster
- C. accountability
- D. regression

LIVE OAKS CAREER TEST

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary social science program. Through these experiences you have met a variety of professionals. List the occupational titles of the professional with whom you spent at least one (1) hour. Examples: psychiatric nurse, social worker, etc.

____

____

____

____

____

____

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.

Ten of More Hours of Meeting Time	Less Than Ten Hours of Meeting Time
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________
____________________	____________________

3. Read the four statements below and circle the one which best describes your feelings about a social science career at the time you decided to enter the pre-postsecondary social science program.

   A. I had identified a particular social science occupation as a fairly definite goal
   B. I had a definite interest in a social science career, but was undecided what occupation to consider
   C. I thought I might be interested in a social science career and wanted to learn more about the social science field
   D. I wasn't particularly interested in a social science career, but several other features of the program were attractive to me

4. Respond to Question 4 ONLY if you selected STATEMENT "A" in the last item. The occupation I had in mind as I began the program was ______________________________.

5. Read the next four statements and circle the one that best applies to you AT THIS TIME.

   A. I have identified a particular social science occupation as a fairly definite goal.
   B. I have a definite interest in a social science career but I am still undecided which occupation to select as a goal
   C. I am still considering a social science occupation, but I am also interested in several careers that are not related to social science
   D. I am not seriously considering a social science career

Respond to Questions 6a, b, and c ONLY if you selected STATEMENT "A" in item 5.

6a. The occupation I have identified is ______________________

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

____

____

____

____

____

____

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

____

____

____

Answer Questions 7a, and b ONLY if you selected STATEMENTS "B" or "C" in item 6

7a. Which social science occupations are you considering?

____

____

____

____

7b. Choose ONE of those occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

____

____

____

____

8. Read the following statements and circle the one which best describes how your interest in a social science career has changed while you have been in the program.

A. My interest in a social science career has increased
B. My interest in a social science career has remained about the same
C. My interest in a social science career has decreased

Answer the following open-ended questions as completely as possible.

9. How did your contact with practicing social science professionals contribute to an increased/constant/decreased interest in pursuing a social science carrer? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of social science careers.

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in social science? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a social science career. Describe some of these topics or activities and explain how they have affected your understanding of social science careers.

STUDENT ANSWERS TO LIVE OAKS CAREER TEST

1. Field trips taken and professionals with whom you spent some time

   Social worker with CMHA, teacher for special children at Longview State Hospital, social worker for CYSB (Youth Service Bureau), Clinical tester for pre-school children, people involved at clinic for Brain Injured Children, kindergarten involved with children with motor disabilities

   Public relations, teachers, lawyers, psychologists, social workers, photographers, newspaper editors, and children

   Social worker, school psychologist, teachers, psychiatrists, psychologists, community workers, lawyers

2. Amount of time spent: ten or more hours of meeting time

   CMHA, Longview, CYSB, Brain Injured Clinic, Motor Control Help

   Loveland Primary, working with special ed., CMHA--Cincinnati, Brain Injured Clinic, Senior Citizen Center

   Social workers, teachers, community workers

   Less than ten hours of meeting time

   Clinical tester, Vedanta House, Crisis Intervention Center, 621-CARE

   U.C. psychiatrist, 621-CARE, Longview, Vedanta House, Crisis Intervention Center

   Psychiatrists, school psychologists, psychologists, lawyers

6a. The occupation I have identified is:

   Social work with kids

   Social work with young people

   (no comment)

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

College of Social Science Technology

Fine Arts--photography

(no comment)

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

U.C.

O.U. or Kent State

(no comment)

7a. Which social science occupations are you considering?

Counseling kids with drug and related problems--social worker

Speech and hearing therapist

Psychology, psychiatry

7b. Describe post-secondary training necessary to enter one of those occupations mentioned in 7a.

(no comment)

None

A lot of college and, for me, on-hand experience.

9. How did your contact with practicing social science professionals contribute to an increased/constant/decreased interest in pursuing a social science career? As you formulate your answer, keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of social science careers.

I said my interest remained constant but that is not really the case. In view of working with some of the social workers, my interest increased when I learned what kinds of things they did and how they helped some of the people. However, seeing how much hassle they had to go through just to help someone OR having so much red tape that they could not even help solve a simple problem really turned me off. Also, the hours they sometimes have to work and the salaries just don't seem to correlate.

It made me realize that I'm not as interested in social sciences as much as I was before I entered the pre-postsecondary program. But, this is an advantage because I found out early enough through my experiences and now I have broadened my knowledge and have developed definite interests for my future career.

You learn there is always a good and bad side and that what you see on T.V. about lawyers , Psychologists, ect. is mostly a bunch of (balogny). Along with the excitement there is also the drudgery of paper work on red tape. This kept the social workers many times from proceeding on a case because she had to stop and fill out a couple of forms and by that time somebody had either died or disappeared. The job of Psychology is most tempting to me because I've always been curious about the workings of the mind. The salary is decent compared to lawyers and especially social workers. The atmosphere of a psychologist seems more pleasant too according to the field you enter.

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in social science? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a social science career. Describe some of these topics or activities and explain how they have affected your understanding of social science careers.

(No Comment)

(No Comment)

Mostly, the classroom learning took place last year. At the start of this year, we learned about psychology-psychiatry through reading of I'm OK-Your OK etc. We did a few programmed learning excercises which we never did finish and which upset us. The rest of this year has been a drag partly my fault because I'm undecided on what my goal or profession is. At least we learned how boring it is to sit idle for a length of time and when others say how they would love to sit back like us-we say "No way". I've learned how good it is to be doing something you enjoy and knowing what that something is.

X

PENTA

PRE-CALCULUS TEST

Name ____________________

Work the following problems and write the answers in the space provided at the right. Use any available space for your work.

1. Find the solutions for the following equations:

$2[z-1] = 3[z+2]$ z = -8

$3+5a = -1$ a = -4/5

$x-6 = 8-x$ x = 7

$-2[1-b] = -2[b+1]$ b = 0

2. Simplify the following expressions:

$[a-b]\ [a^2+a^2b]$ $a^3 + a^3b - a^2b - a^2b^2$

$\frac{a^2+2ab+b^2}{[a+b]}$ a + b

$\frac{[x^3-9x]}{[x^2+3x]}$ x - 3

3. The resistance of copper wire varies directly as its length and inversely as the square of its diameter. If 20 miles of wire 3/8 inch in diameter has a resistance of 70ohms. How many miles of wire 3/4 inch in diameter will have the same resistance? 80 miles

4. If x and y vary directly and x=20 when y=35, what is x when y=175? x = 100

5. If $\log_{10}2 = .3010$, and $\log_{10}3 = .4771$, what is $\log_{10}12$?

$\log_{10}12 = 1.0791$

6. Express the following as a power of 10

64,801 — 6.4801×10^4

.00185 — 1.85×10^{-3}

.0000027 — 2.7×10^{-6}

7. Find the center and radius of the following circles

$$[x-4]^2 + [y+4]^2 = 81$$

center [4, -4]

radius 9

Find the center and the length of the axis for the following ellipse:

$$\frac{(X+2)^2}{9} + \frac{(Y-1)^2}{4} = 1$$

center [-2, 1]

major axis 6

minor axis 4

8. Write the equation of the circle with center at the origin and radius of 20.

$x^2 + y^2 = 400$

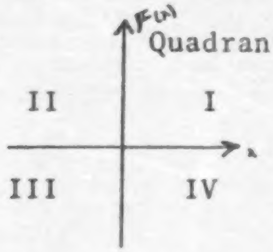
9. Where does the graph of $X^2+Y^2-4X+6Y-12 = 0$ cross the x-axis?

X = 6 y = 0

X = -2 y = 0

10. What is the sign of f[x] = sin x in quandrant III?

negative



11. What is the value of cos $\frac{18\pi}{6}$

-1

12. What is the value of sin $\frac{18\pi}{6}$

0

13. What are the sine and cosine of 135^o?

sine .707

cosine -.707

14. What is the reference angle of 480^o?

120°

15. If $\overline{u} = [3,2]$, $\overline{v} = [0,2]$, and $\overline{z} = [2,2]$ solve the following expressions:

$\overline{u} + \overline{v} + \overline{z} =$ [5,6]

$\overline{u} - \overline{z} =$ [1,0]

$\overline{u} \cdot \overline{v} =$ [0,4]

$3\overline{u} =$ [9,6]

16. Evaluate the following determinant

[-9]

$$\begin{vmatrix} 5 & 2 & 4 \\ 0 & 2 & 1 \\ 4 & 3 & 3 \end{vmatrix}$$

17. Solve these simultaneous equations

$2x + y = 5$

$2x - 2y = 20$

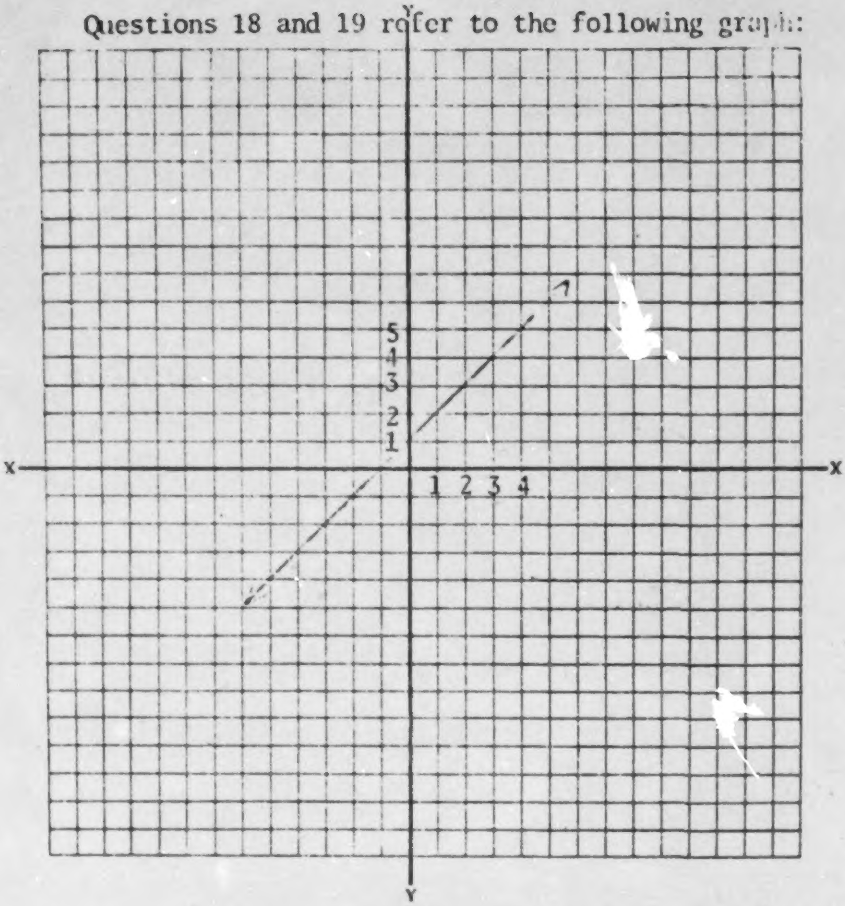
$x =$ 5 $y =$ -5

$x^2 - y = 0$

$2x + y = -1$

$x =$ -1 $y =$ 1

Questions 18 and 19 refer to the following graph:



18. What is the slope of this line slope = +1

19. Write the equation of this line y = x + 1

20. Is the equation you found in question 19 the equation of a function? yes

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PENTA CALCULUS TEST

d 1. Which of the following is an example of a rational number?

a. $-5/6$
b. 7
c. $\sqrt[3]{8}$
d. all of the above

d 2. Which of the following is an expression for a closed interval from a to b?

a. $a < x < b$
b. $a \leq x < b$
c. $a < x \leq b$
d. $a \leq x \leq b$

x= 2 or -6 3. Solve for x.

$$|2 + x| = 4$$

13 4. Find the distance between the points M(4, -1) and N(1, 1)

[4,0] 5. Find the x intercept of the following line:
$2x + 4y = 8$

6. Write the equation of a line that passes through the point (1, 2) and has a slope of 2.

$y - 2 = 2[x - 1]$ or $y - 2x = 0$

a 7. Which of the following is an equation of a circle?

a. $x^2 + y^2 - 2x - 2y = 4$

b. $x^2 = y + 2$

c. $x^2 - y^2 = 4$

d. $x + 5y = 17$

b 8. Which of the following is a function?

a. (1, 3) (0, -5) (1, 7) (7, 6)

b. (3, 1) (5, 2) (6, 7) (2, 1)

undefined 9. If $f(x) = (3x + 7)/(x - 3)$ find $f(3)$

1 10. Find the limit of the following

$$\lim_{x \to 7} \frac{5x - 15}{x^2 - 5x + 6}$$

________ 11. Using these expressions write an expression for $f'(x)$.

$$\lim_{h\quad 0} \frac{3[x+h]^2+6[x+h]+4 - [3x^2+6x+4]}{h}$$

$f(x) = 3x^2 + 6x + 4$
$f(x+h) = 3(x + h)^2 + 6(x + h) + 4$

6 12. Find the slope of the tangent to $y = x^2 - 4$ at the point (3, 5)

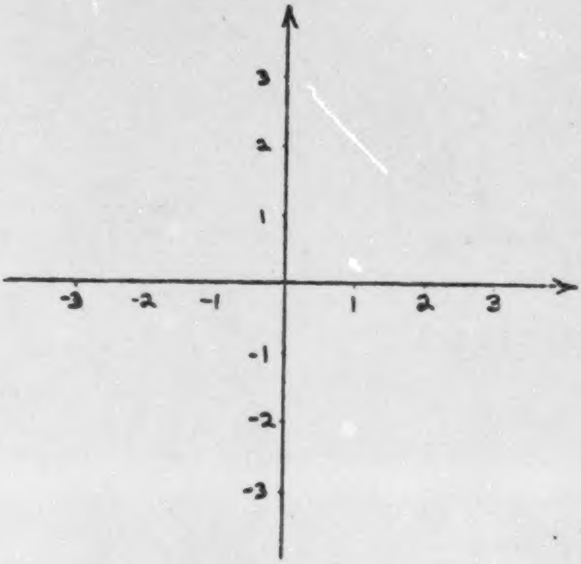
________ 13. Differentiate the following functions with respect to x:

answers:
$[6x+2]$ a. $f(x) = 3x^2 + 2x \pm 17$
$3[2x-7][x^2-7x]^2$ b. $f(x) = (x^2 - 7x)^3$

1/2 min 2 max 14. Find the extrema of function f where $f(x) = x^2 - x$ on the interval (0, 2)

2/3 min 15. a. Find the relative extrema of $f(x) = 3x^2 - 4x + 2$

b. Sketch the curve given in part a



2 min 16. Find the absolute extrema of $f(x)$.

$$1 - 4x + x^2 - f(x)$$

$3/8[2x]^{4/3}+C$ 17. Find $\int \sqrt[3]{2x}\,dx$

15 18. Find $\int_{-1}^{2} (x^2 + 2x + 3)dx$

125/6 19. Find the area of the region bounded by:

$y - 4 - x^2$

$y = 3x$

$-e^{-x}$ 20. Find $\int e^{-x}dx$

$-\frac{1}{3}\cos[3x+1]$ 21. Find $\int \sin(3x + 1)dx$

$\ln[x+2]$ 22. Find $\int \frac{1}{x+2}\,dx$

$\frac{2x-2}{x^2-2x}$ 23. Find $D_x \ln (x^2 - 2x)$

$[2x+1]\cos[x^2+x]$ 24. Find the derivative of $f(x) = \sin(x^2 + x)$

$4xe^{x^2}$ 25. Find the derivative of $f(x) = 2e^{x^2}$

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. Which of the following would be considered a model?

   A. P x V = constant
   B. Avogardro's Hypothesis
   C. Dalton's Atomic Theory
   D. The Bohr Atom

2. Which of the following numbers contains the greatest number of significant figures?

   A. 0.0041
   B. 121
   C. 1.049
   D. 1000

3. Ten centimeters is equal in length to:

   A. 100 millimeters
   B. 100 decimeters
   C. 10^{-3} meters
   D. 10^{-3} kilometers

4. Which of the following is NOT true?

   A. a mole of hydrogen-1 molecules always has the same mass
   B. a mole of hydrogen-1 molecules always occupies the same volume
   C. a mole of hydrogen-1 molecules always contains the same number of atoms
   D. a mole of hydrogen-1 gas always contains approximately 6 x 10^{23} molecules

5. Five moles of Na_2CO_3 contain:

   A. five moles of oxygen atoms
   B. ten moles of sodium
   C. fifteen moles of CO_3^{-2} ions
   D. fiteen moles of O_2 molecules

6. The correct formula for the sulfide ion is:

   A. S^{-2}
   B. SO_4^{-2}
   C. SO_3^{-}
   D. SO_2^{-2}

7. The correct formula for aluminum nitrate is:

   A. $Al(NO_2)_3$
   B. Al_3NO_3
   C. $AlNO_2$
   D. $Al(NO_3)_3$

8. When the equation below is balanced using the lowest possible whole numbers what coefficient should appear in front of substance AX?

$$A + BX_2 \longrightarrow AX + B_2$$

   A. 1
   B. 2
   C. 3
   D. 4

9. The number of moles of water in a 360 gram sample is:

   A. 0.05
   B. 5
   C. 10
   D. 20

Items 10, 11, and 12 are questions about a compound of platinum and chlorine which consists of 42.1% chlorine.

10. What is the number of moles of chlorine in 100g of the compound?

   A. 1.19
   B. 4.21
   C. 0.84
   D. none of the above

11. How many moles of chlorine are combined with one mole of platinum atoms?

   A. 1/4
   B. 2
   C. 1
   D. 4

12. What is the empirical formula for the compound?

   A. Pt_4Cl
   B. $PtCl_4$
   C. $PtCl$
   D. $PtCl_2$

13. Which of the following would you expect to have properties most similar to those of Ca?

A. K
B. Mg
C. C
D. I

14. Which halogen would you expect to have the largest atomic radius?

A. F
B. Cl
C. Br
D. I

15. Consider an atom with the electron configuration

$$1s^2 2s^2 sp^6 3s^1$$

Which of the following is FALSE?

A. the atom has atomic number 11
B. the atom is in an activated electron state
C. the atom will tend to form +1 ions
D. the atom must gain energy to change to $1s^2\ 2s^2\ 2p^6$

16. Bromine ions have the same number of electrons as:

A. Kr atoms
B. Cl ions
C. Se atoms
D. K atoms

17. The correct electron dot symbol for calcium is:

A. $\cdot\dot{\underset{\cdot}{C}}\cdot$
B. $\underset{\cdot}{Ca}^{\cdot}$
C. $Ca{:}$
D. $:\ddot{C}$

18. When nitrogen is in its lowest energy state, the number of electrons is p-orbitals is:

A. 0
B. 1
C. 2
D. 3

19. The gram formula weight for Na_2CO_3 is approximately:

A. 130
B. 106
C. 73
D. none of the above

20. A centigrade temperature of 20° is equal to:

A. 200°K
B. 253°K
C. 293°K
D. none of the above

21. How many moles of Fe_2O_3 can be prepared by heating two moles of iron with an excess of oxygen?

A. .5 moles
B. 1 mole
C. 2 moles
D. none of the above

22. How many molecules of oxygen are present in one liter of the gas at STP?

A. 6.02×10^{23}
B. 2.68×10^{22}
C. 3.76×10^{22}
D. none of the above

23. Which of the following would have the slowest rate of diffusion?

A. ink through water
B. solid gold into solid lead
C. water vapor into air
D. carbon dioxide into water

24. A closed vessel contains equal numbers of oxygen and helium molecules. The pressure is 760mm and the volume is 20 liters. Which of the following is NOT true?

A. the average kinetic energy is the same for the oxygen molecules and helium molecules
B. the average speed of the helium molecules is greater than that of the oxygen molecules
C. if the helium could be removed from the system the pressure would drop to 190mm
D. the number of oxygen atoms present is twice the number of helium atoms

25. A student collects a 250 ml sample of hydrogen over water at 18.5°C. The vapor pressure of water at this temperature is 16mm. If atmosphere pressure is 756mm, what is the partial pressure of hydrogen in the collection vessel?

A. 740mm
B. 756mm
C. 772mm
D. none of the above

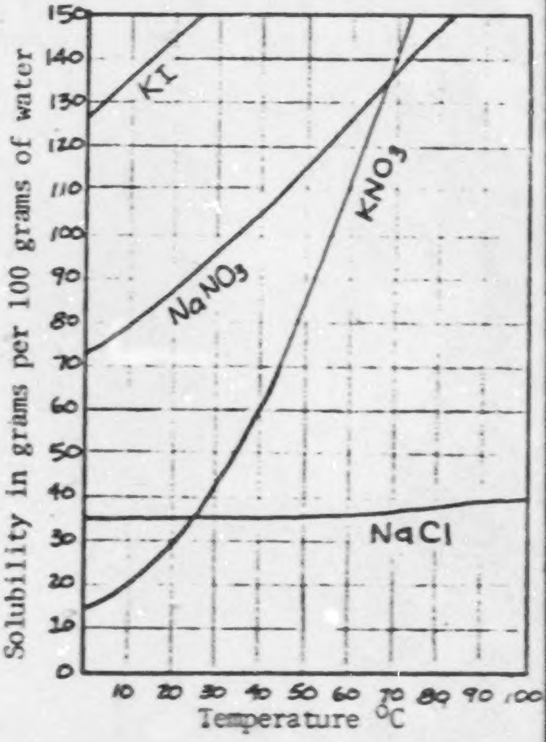
26. Which of the following must the student do before he uses the formula $n = PV/RT$ to calculate the number of moles of hydrogen collected? $(R = 0.082/\frac{1\ atm}{mole^{\circ}K}$

A. convert the partial pressure of H_2 atmosphere
B. convert the temperature to °K
C. convert the volume of gas collected to liters
D. all of the above

27. Natural processes tend to favor a state of:

A. higher entropy and lower energy
B. higher entropy and higher energy
C. lower entropy and lower energy
D. lower entropy and higher energy

Use the solubility curves to the right to answer the next three items



28. Increasing the temperature has the greatest effect on the solubility of:

A. KI
B. KNO_3
C. NaCl
D. $NaNO_3$

29. At 50°C the concentration of a saturated $NaNO_3$ solution will be approximately:

A. 150g $NaNO_3$/100g H_2O
B. 72g $NaNO_3$/100g H_2O
C. 115g $NaNO_3$/liter H_2O
D. 1150g $NaNO_3$/liter H_2O

30. If 80g of KNO_3 are stirred into 100g of water at 40°C

A. the KNO_3 will completely dissolve
B. some of the KNO_3 will remain undissolved
C. the solution will be supersaturated
D. the solid will not be in equilibrium with the solution

31. Addition of a non-volatile solute to water leads to:

A. a lower melting point
B. a higher melting point
C. a lower boiling point
D. a higher vapor pressure

32. A 0.02M solution of KCl contains:

A. 74.55g KCl/liter
B. 1.49g KCl/liter
C. 7.46g KCl/liter
D. none of the above

33. If the half life of a radioactive source is 100 years, how long will it take for a 10 gram sample to be reduced to 2.5 grams?

A. 25 years
B. 75 years
C. 150 years
D. 200 years

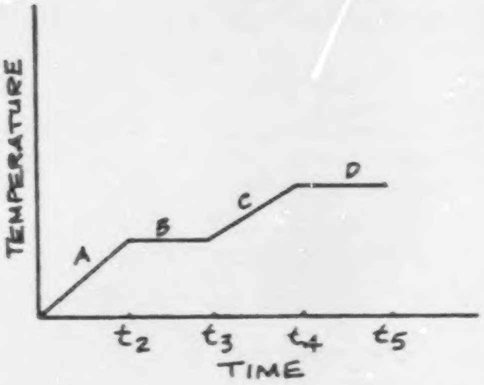
34. A high energy electron emitted from a radioactive nucleus during decay is called a/an:

A. beta particle
B. alpha particle
C. gamma ray
D. roentgen particle

35. Catalysts affect chemical reaction through:

A. simplifying the reaction mechanism
B. lowering the activation energy
C. increasing the pressure of the system
D. lowering the heats of formation of the products

The diagram below summarizes the data obtained when the temperature is taken at regular intervals as heat is added to a solid below its melting point. Use the diagram to answer the next three items.



36. At which time would you expect the sample to have begun to boil?

A. t_2
B. t_3
C. t_4
D. t_5

37. In which portion of the curve do molecules have the highest average kinetic energy?

A. A
B. B
C. C
D. D

38. In which part of the graph are both liquid and solid present?

A. A
B. B
C. C
D. D

39. Which of the following substances can be expected to dissolve in water to form molecules rather than ions?

A. RbBr
B. $CsNO_3$
C. HNO_3
D. sucrose

40. Which of the following substances forms a molecular solid made up of polar molecules?

A. potassium hydroxide
B. carbon tetrachloride
C. sodium chloride
D. water

41. Which of the following is a property of a strong acid?

A. its solution feels slippery
B. its solution has (H_30+) of 10^{-10}M
C. its solution is a good conductor of electricity
D. its solution turns litmus blue

42. According to the Bronsted theory, an acid is a:

A. proton acceptor
B. proton donor
C. substance containing hydronium ions
D. substance which reacts with hydroxide ions

43. If HCl in the reagent bottle on the laboratory shelf contains 0.443g HCl/ml of solution, how many ml of reagent would be needed to make one liter of 0.02M HCl?

A. 82.3ml
B. 1.64ml
C. 3.23ml
D. 8.86ml

44. How many milliliters of 0.02N HCl are needed to react completely with 50ml of 0.01N NaOH?

A. 100ml
B. 25ml
C. 75ml
D. none of the above

45. What is the hydroxide ion concentration in a solution of .1M HNO_3?

A. .1M
B. 10^{-6}M
C. 10^{-13}M
D. none of the above

46. The reaction $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_{2(g)}$ is classified as:

    A. replacement
    B. decomposition
    C. ionic
    D. composition

47. Hydrogen and chlorine react according to the equation given below:

$$H_{2(g)} + Cl_{2(g)} \rightleftharpoons 2HCl_{(g)} + 44.0\text{ kcal}$$

Which of the following will cause an equilibrium shift favoring increased formation of HCl?

    A. increasing the pressure upon the system
    B. adding a catalyst
    C. removing $H_{2(g)}$
    D. lowering the temperature

48. The oxidation number of Mn in $KMnO_4$ is:

    A. 9+
    B. 2-
    C. 6-
    D. none of the above

49. When the equation below is balanced using the lowest possible whole numbers, what coefficient should appear in front of SO_2?

$$H_2S + O_2 \longrightarrow SO_2 + H_2O$$

    A. 1
    B. 2
    C. 3
    D. 4

50. Which of the halogens cannot be prepared in the laboratory by action of an oxidizing agent on the appropriate halide?

    A. Cl_2
    B. I_2
    C. F_2
    D. Br_2

51. The greater the difference in electronegativity of two atoms forming a bond:

    A. the more equally electrons will be shared
    B. the more nonpolar the bond
    C. the more ionic the bond
    D. the more evenly charge will be distributed after bonding

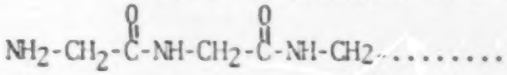
52. The substance whose structural formula is $CH_3-\overset{O}{\overset{\|}{C}}-O-CH_2-CH_3$ is classified as a/an:

A. acid
B. ester
C. ketone
D. ether

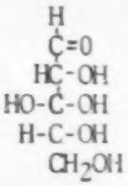
53. Chemists use the infrared spectrometer to determine the:

A. molecular weight of organic compounds
B. percentage of oxygen in organic compounds
C. nature of the functional groups present in organic compounds
D. rate of organic reactions

54. Which of the following presents the general structure of a protein molecule?

A. 
$NH_2-CH_2-\overset{O}{\overset{\|}{C}}-NH-CH_2-\overset{O}{\overset{\|}{C}}-NH-CH_2\cdots\cdots$

[illegible]. $CH_3CH_2CH_2CH_2CH_2----CH_2CH_3$

C. 

D. $(C_6H_{12}O_6)n$

55. The double bond found in alkenes and in benzene is thought to result from overlap of:

A. hybridized sp^2 orbitals of carbon atoms
B. s orbitals of carbon atoms
C. p orbitals of carbon atoms
D. hybridized sp^3 orbitals of carbon atoms

PENTA LIFE SCIENCE TEST

1. During photosynthesis:

   A. plants use oxygen from the air
   B. photochemical reactions boost the energy of electrons
   C. sucrose is produced
   D. all of the above

2. Which of the following is true of enzymes?

   A. enzymes are carbohydrates of high molecular weight
   B. enzymes decrease the rate of chemical reactions in the body
   C. enzymes raise the amount of energy needed to start a reaction
   D. enzyme shape determines enzyme activity and specificity

3. The immediate energy needs of a cell are satisfied through:

   A. digestion of proteins
   B. the action of lysomes
   C. the breaking of ATP phosphate bonds
   D. the action of enzymes on amino acids

4. Which of the following lists of taxonomic divisions properly orders the given classification categories from most general to most specific?

   A. kingdom, phylum, order, family, genus, species
   B. kingdom, genus, order, phylum, family, species
   C. kingdom, order, phylum, species, family, genus
   D. kingdom, family, phylum, species, genus, order

5. Viruses and bacteria belong to the:

   A. kingdom Plantae
   B. kingdom Animalia
   C. kingdom Monera
   D. none of the above

6. With respect to the origin of life many biologists believe:

   A. that all life began as a single chance critical combination of chemicals
   B. that the critical combination of chemicals came into being at many different times and places
   C. that acquisition of property of self-replication was the most important event in the evolution of life
   D. all of the above

7. Which of the following organisms does NOT remain single-celled throughout its life?

   A. amoeba
   B. euglena
   C. spirogyra
   D. euplotes

8. The process by which a substance can be moved through a cell membrane from a point of lower concentration to a point of higher concentration is:

    A. plasmolysis
    B. active transport
    C. diffusion
    D. osmosis

9. One substance or structure found in plant cells but NOT in animal cells is the:

    A. cell membrane
    B. mitochondria
    C. cell wall
    D. centrioles

10. The nucleus of a cell does NOT contain the:

    A. genes
    B. chromatin
    C. chromosomes
    D. ribosomes

11. Meiosis is the process by which:

    A. asexual reproduction occurs
    B. haploid gametes are formed
    C. four identical daughter cells are formed
    D. egg cells are fertilized

12. All thallophytes:

    A. are photosynthetic
    B. are unable to reproduce sexually
    C. are plants
    D. molt when the exoskeleton becomes too small

13. Which of the following is NOT an angiosperm?

    A. fern
    B. oak tree
    C. tulip
    D. green bean

14. The hormone which regulates growth of plant shoots and regulates the response of plants to light is:

    A. kinin
    B. auxin
    C. oxytoxin
    D. tyrosine

15. The echinoderms are marine animals with:

    A. an exoskeleton
    B. a spiny skin
    C. bilaterial symmetry
    D. closed circulatory system

16. From an evolutionary standpoint, the oldest vertebrates are:

A. dinosaurs
B. birds
C. sponges
D. fishes

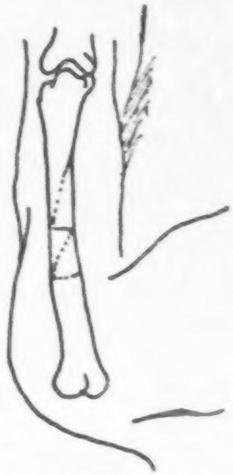
17. The sex of vertebrate offspring is determined by:

A. the sex chromosome carried by the sperm cell
B. the sex chromosome carried by the egg cell
C. crossing over of chromosomes
D. the presence of an X chromosome

18. The structure of proteins synthesized by a cell is determined by the:

A. type of ribosome involved
B. sequence of DNA nucleotides
C. amount of RNA available
D. action of specific enzymes

19. The fracture illustrated should be classified as:



A. greenstick
B. compound
C. simple
D. comminuted

20. Which of the following exhibits bilaterial symmetry?

A. cat
B. planarian
C. scallop
D. lobster

21. Cells of complex organisms

A. depend on some form of intercullular communication
B. are specialized for specific functions
C. are dependent upon other types of cells
D. all of the above

22. Much information about the evolutionary predecessors of a species can be obtained through the study of:

    A. embryology
    B. ecology
    C. ethology
    D. homeostatis

23. The process through which experience produces adaptive change in an individual is:

    A. avoidance
    B. habitation
    C. learning
    D. avoidance

24. Which of the following is true of arthropods?

    A. they lack means of communicating with each other
    B. many important behaviors appear to be innate rather than learned
    C. their senses of taste and smell are poorly developed in comparison with that of mammals.
    D. their ability to perceive motion is poorly developed in comparison with that of mammals

25. Information regarding the functions of areas of the brain has been obtained primarily through the technique of:

    A. regard and punishment of animals
    B. behavior modification
    C. electrical stimulation of brain sections of living animals
    D. studying animal behavior in natural settings.

26. Of the following, the best source of protein is:

    A. oranges
    B. fish
    C. green beans
    D. raisins

27. Which of the following is not part of the excretory system?

    A. skin
    B. urethra
    C. liver
    D. bronchi

28. The image formed by the lens of the eye is focused upon the:

    A. cornea
    B. iris
    C. retina
    D. conjuctiva

29. The human eye adjusts to change in distances of objects by:

A. changing the thickness of the lens
B. changing the opening of the iris
C. forming additional visual purple
D. changing the shape of the rods and cones

30. Frequent exercise will increase the size of the muscles being used. This happens because:

A. the stimulation causes a large number of new muscle cells to form
B. the amount of cytoplasm in individual muscle cells is increased
C. fluid collects between the muscle fibers
D. the blood flow to the muscles is maintained at a higher level

31. Smooth muscle cells are found in:

A. the triceps
B. the heart
C. the ligaments
D. the walls of the aorta

32. Which of the following is largely composed of connective tissue?

A. cartilage
B. the pectoralis major
C. the cerebrum
D. skin

33. The vitamin most directly associated with good vision is:

A. vitamin A
B. vitamin K
C. vitamin C
D. vitamin D

34. Injection of living or dead microorganisms to protect an individual against disease is called:

A. neutralization
B. passive immunization
C. phagocytosis
D. vaccination

35. Boiling will not kill:

A. bacteria
B. fungi
C. protozoans
D. bacterial spores

36. Strenuous exercise results in an increase in:

A. the number of red blood cells
B. the rate of breathing
C. blood pressure
D. all of the above

37. Food moves through the digestive tract by means of muscular contractions called:

A. deamination
B. diastolic pressure
C. peristalsis
D. deglutition

38. A man with Rh+ blood:

A. may safely receive blood from a Rh- individual having the same blood type
B. cannot produce a Rh+ child when paired with a woman having Rh- blood
C. may safely be a blood donor for a Rh- relative who needs transfusions on a regular basis several months apart
D. lacks blood proteins that are present in Rh- individuals.

39. The longest and strongest bone in the human skeleton is the:

A. humerus
B. tibia
C. clavicle
D. femur

40. The process of ossification is important in the formation of:

A. nerve tissue
B. proteins
C. bones
D. white blood cells

41. Which food contains the largest proportion of carbohydrate?

A. apples
B. bacon
C. eggs
D. fish

42. The part of the nervous system that controls the skeletal muscles is the:

A. cerebellum
B. medulla
C. cerebral cortex
D. pons

43. Niacin is a/an:

A. vitamin
B. enzyme
C. hormone
D. none of the above

44. In the days of exploration and settlement by Europeans, entire Indian villages were wiped out by diseases that would have produced only mild illness in the Europeans. The best explanation is that:

A. differences in genetic make-up caused the Indians to react more violently than whites
B. the Europeans' blood contained antibodies most present in the blood of the Indians
C. the Indians were less resistent to disease due to poorer diet
D. antibiotics used by the Europeans were not available to the Indians.

45. If the ability of an individual to produce acetylcholine were blocked he would:

A. not be able to digest fats
B. become anemic
C. not be able to utilize vitamin C
D. would not be able to contract voluntary muscles

46. Bacterial morphology deals with the:

A. shape and structure of bacteria
B. habitat of bacteria
C. diseases caused by bacteria
D. taxonomic classification of bacteria

47. Which of the following is not bacterial in origin?

A. tuberculosis
B. gonorrhea
C. tetanus
D. hemophilia

48. Which of the following instruments is used in making a red blood cell count?

A. polygraph
B. hemocytometer
C. electron microscope
D. spirometer

49. The number of calories made available to humans consuming beef is approximately:

A. 95% of the calories consumed by the animal in the form of grain
B. 70% of the calories consumed by the animal in the form of grain
C. 30% of the calories consumed by the animal in the form of grain
D. 10% of the calories consumed by the animal in the form of grain

50. Evidence from fossils and the study of contemporary primates suggests that:

A. Man evolved from the great apes
B. Man and the great apes have a common ancestor
C. The evolution of primates was not influenced by natural selection
D. Man and apes evolved to their present forms approximately 30 million years ago

51. Following fertilization the egg cell is known as a:

A. gamete
B. zygote
C. gonad
D. somatic cell

52. If the laws of complete dominance apply and gray coat color is recessive to black in squirrels, a gray squirrel must have:

A. two recessive genes
B. one gene for black
C. one gene for gray
D. two genes for black

53. With respect to genes for color the gray squirrel is said to be:

A. heterozygous gray
B. homozygous gray
C. heterozygous black
D. homozygous black

54. When a bird avoids certain insects because of earlier experiences with their bad taste, he is exhibiting:

A. instinctive behavior
B. imitation
C. trial and error learning
D. imprinting

55. According to the molecule-code theory:

A. Memory depends upon the establishment of physical connections or pathways between neurons
B. Memory is somehow stored in RNA molecules
C. Memory can be increased by increasing the intake of protein
D. Memory can be strengthened by frequent mental exercise

Questions 56 through 60 are based on the research project described below:

A group of scientists studying monkeys in the native settings encamped in the jungle for several months. Before long, some monkeys accepted the scientists and visited them regularly for handouts since food was somewhat scarce. A few particularly friendly animals were even jokingly given names by the scientists who took advantage of the visits to carefully observe the monkeys. Data gathered on these occasions were included in their report and became the basis for generalizations about the social behavior of monkeys in their natural habitat.

56. Which of the following threatens the validity of the study?

A. the camp setting for observation
B. reducing the need of the monkeys to compete for food
C. a non-representative sample fo subjects
D. all of the above

57. Which of the following would be the most useful hypothesis statement for this study of social structure among the monkeys?

A. If a rigid social structure exists, each monkey "will know its place."
B. If a monkey has low status, it will exhibit submissive behavior
C. If a rigid social structure exists, the frequency with which monkeys submit to others will differ significantly among the monkeys
D. If a monkey has low status, the observed frequency of submission will be greater than expected by chance alone.

58. Before beginning to take data for this study the most crucial task the scientists face is:

A. ordering and deploying the specialized equipment needed
B. establishing guidelines for determining whether observed behavior is aggressive or submissive.
C. conditioning the monkeys to make their visits at times convenient for observation
D. setting up rotating schedules for the scientists that observation posts be manned at all times

Some of the data collected by the group of scientists appeared below. Although many monkeys were observed the table summarizes the behavior of only three subjects

Frequency of Agressive Acts
(% of total interactions)

Recipient of Acts	Displayer of Behavior		
	Monkey 1	Monkey 2	Monkey 3
Monkey 1		72	54
Monkey 2	29		35
Monkey 3	46	65	

59. What percentage of the behavior of Monkey 1 toward Monkey 3 was aggressive?

A. 46%
B. 54%
C. 75%
D. the percentage cannot be determined from the information given

60. If the monkeys were ranked from most aggressive to least aggressive, the order would be?

A. Monkey 1, Monkey 2, Monkey 3
B. Monkey 2, Monkey 3, Monkey 1
C. Monkey 3, Monkey 1, Monkey 2
D. none of the above

PHYSICS TEST
Pre-Postsecondary Program
TOLEDO

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. Researchers consider it good practice to repeat measurements or experiments several times and average the results before drawing conclusions because:

   A. repetition will reduce systematic error
   B. it will be possible to obtain data that are correct to a greater number of significant figures
   C. random errors will tend to cancel out
   D. all of the above

2. In which of the following pairs are both of the given units used to measure the same variable quantity?

   A. newton : dyne
   B. joule : dyne
   C. kilowatts : coulomb
   D. ft-lb : newton

3. Since $F = Ma$ and $F = \frac{Wa}{g}$ it follows that:

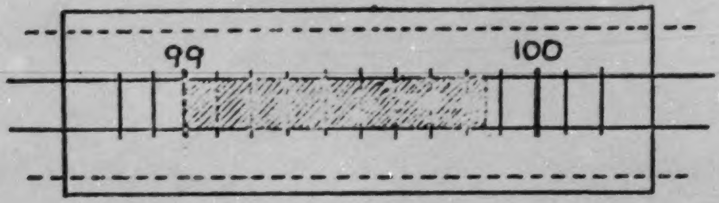
   A. $F = Ma + \frac{Wa}{g}$

   B. $F = \frac{MW}{g}$

   C. $W = Mg$

   D. $g = \frac{M}{W}$

4. The box below contains a sketch of the portion of the thermometer containing the top of the mercury column.



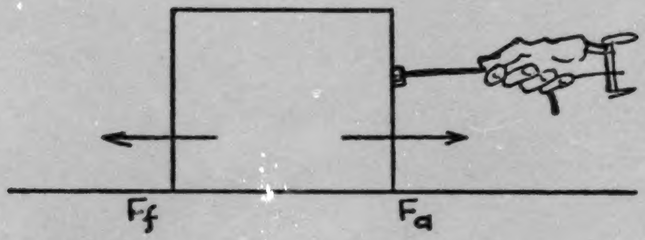
Which of the following best expresses the temperature shown on the thermometer?

A. 99.852°
B. $99.80 \pm 0.05^{\circ}$
C. $99.85 \pm 0.01^{\circ}$
D. $99.950 \pm 0.001^{\circ}$

5. An object weighs less in an orbiting spaceship than on the earth because:

A. The mass of the object is less in space than on the earth.
B. The distance between the object and the center of the earth is greater in orbit.
C. The atmospheric pressure in space is less than that on the earth.
D. Centripetal force due to orbiting reduces the weight.

6. If the block shown in the diagram does not move from a resting position when force F_a is applied:



A. The force due to friction F_f is greater than F_a
B. The force due to friction F_f is less than F_a
C. The force due to friction F_f is equal to F_a
D. The force due to friction F_f is equal to or greater than F_a.

7. Although the layman commonly gives them the same meaning, speed and velocity differ in that:

A. speed is a vector quantity whereas velocity is a scalar quantity
B. the speed of an object is usually less than its velocity
C. velocity is a more complete description of motion than is speed
D. the basic units used to express the two quantities are not the same

8. If the velocity of a body is tripled, its kinetic energy is:

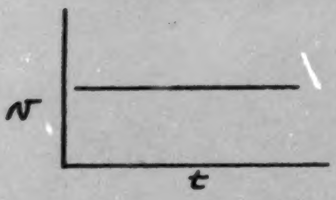
A. reduced by 1/3
B. reduced by 1/9
C. tripled
D. none of the above

9. **If a rifle bullet is fired horizontally from a tower at the same time a baseball is tossed outward from the tower:**

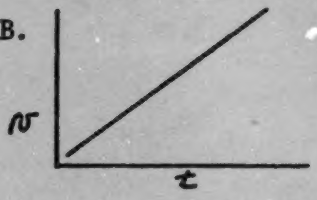
A. both projectiles will fall the same distance during the first second
B. both projectiles will travel the same distance outward from the tower during the first second
C. both projectiles will travel the same total distance during the first second
D. both projectiles will be moving with the same velocity at the end of the first second

10. Which of the following represents a velocity-time plot for an object moving across a horizontal surface with constant acceleration?

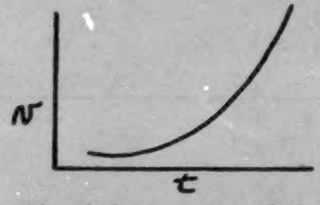
A.



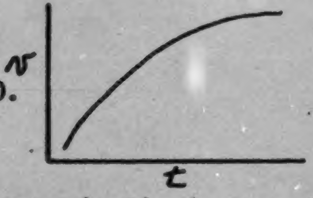
B.



C.



D.



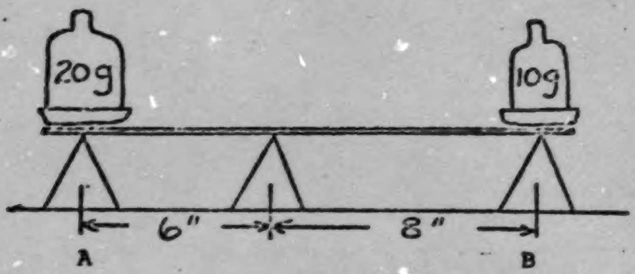
11. A ball with a mass of 0.2kg rolls from rest down an inclined plane 4m long. If its acceleration is 8m/sec^2, how much time will elapse before the ball reaches the bottom?

A. 1 sec
B. 2 sec
C. 3 sec
D. none of the above

12. When calculating the torque produced by the force of gravity on an extended object it is assumed that:

A. the total force acts at a single point
B. the force of gravity is the only force acting on the object
C. the sum of all the torques acting on the body is zero
D. none of the above

13. When supports A and B are removed from the beam holding the weight pans the beam will balance.

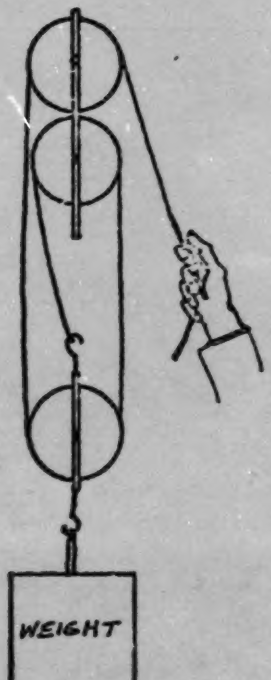


A. with the moveable pans in the position shown
B. if the pan containing the 10g weight is moved 4 inches to the right
C. if the pan containing the 10g weight is moved 5 inches to the left
D. none of the above

14. The mass of a crate is 70kg. If it is hoisted 30 meters onto the deck of a boat in 30 seconds, how much work has been done?

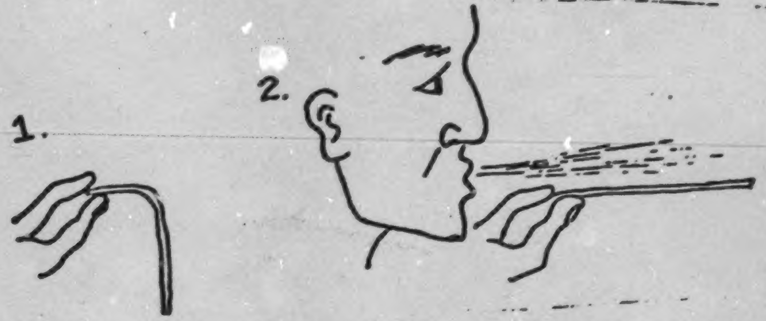
A. 2.1 X 10^3 joules
B. 6.86 X 10^2 joules
C. 2.1 X 10^4 joules
D. 6.3 X 10^3 joules

15. Which of the following is the best representation of the ideal mechanical advantage of this pulley system?



A. 1
B. 2
C. 3
D. 4

16. The piece of paper hangs limply under normal circumstances, but stands out nearly horizontally when a stream of air is blown across its upper surface. The best explanation of this phenomenon is that:



A. Blowing across the upper surface of the paper decreases the air pressure on that surface
B. Warm air from the mouth is less dense than the cooler surrounding air. Thus warmer air rises
C. Blowing across the upper surface of the paper creates a partial vacuum above the paper
D. Blowing across the upper surface of the paper creates a partial vacuum below the paper.

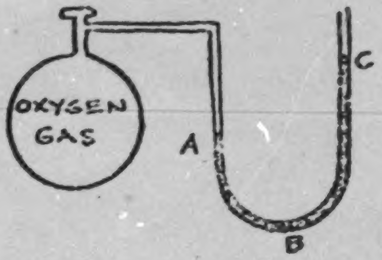
17. A bit of blue ink quietly dropped into a flask of standing water will eventually spread until all of the liquid is light blue in color. The principal reason this happens is that:

A. there are cohesive forces among water molecules
B. water pressure increases slightly from the surface of the liquid to the bottom of the flask
C. water has a lower density than ink
D. molecules of water and ink are constantly in motion

18. A gas has a volume of $1200 cm^3$ when the pressure is 30mm of Hg. What will be its volume at the same temperature if the pressure is increased to 90 mm of Hg?

A. 225cc
B. 400cc
C. 800cc
D. 3600cc

19. Which of the following is true for the system shown?



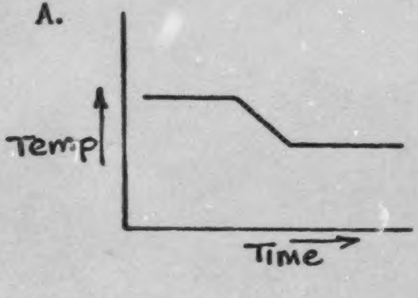
A. The pressure exerted by the oxygen at point A is equal to the pressure exerted by the atmosphere at point C.
B. An increase in the temperature of the enclosed oxygen gas will not alter the position of the mercury in the tube.
C. The mercury levels in the tube will fluctuate slightly from day to day if the system is left undisturbed.
D. The pressure exerted at point B by the oxygen gas and the column of mercury AB is greater than the pressure exerted at point B by the atmosphere and the column of mercury CB.

20. Which of the following statements about temperature are true?

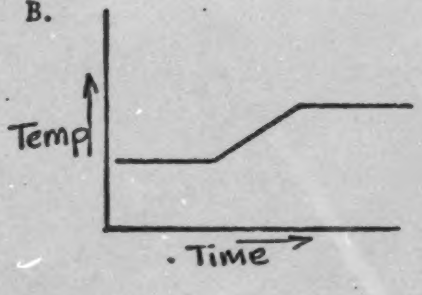
A. the boiling point of water is the same for Centigrade and Fahrenheit thermometers
B. bodies at the same temperature possess equal quantities of heat energy regardless of size
C. the higher the temperature of gas, the more rapid the motion of its molecules
D. all of the above

21. Which of the following graphs best represents the data obtained when the temperature of an ice-water mixture is taken every minute until the liquid remains at room temperature?

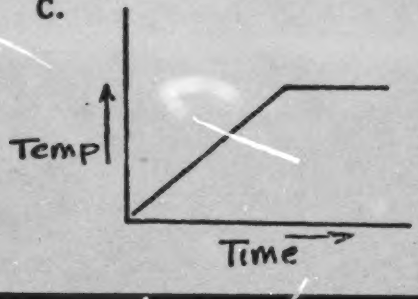
A.



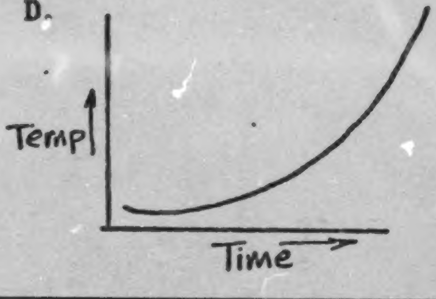
B.



C.



D.



22. The number of calories evolved when 10g of steam is condensed to water and cooled to 50°C is:

A. 5900
B. 5400
C. 5000
D. 500

23. The specific heat of aluminum is 0.214cal/gC$^{\circ}$. How many calories would be required to raise the temperature of 200g of aluminum from 20°C to 80°C?

A. 10.7 cal.
B. 42.8 cal.
C. 1.07×10^3 cal.
D. 2.57×10^3 cal.

24. A four ton boat having a hull displacement of 100ft^3 cruises in sea water of density 64.016/ft^3. The buoyant force exerted on the boat by the water is:

A. 6.4×10^3 lbs.
B. 8×10^3 lbs.
C. 4×10^3 lbs.
D. none of the above

25. Certain insects are able to walk on water because:

A. they displace an amount of water equal to their weight
B. the hairs on their legs are hollow
C. the surface tension of the water exerts vertical forces on the insect
D. the hairs on their legs are covered with air bubbles which give buoyancy

26. When placed in a solution of 0.10 osmol/l,a cell having a nonrigid wall and an internal osmolality of 0.30 is likely to:

A. shrink due to loss of water through the cell membrane
B. expand until the osmolality is equal inside and outside of the cell
C. burst open
D. remain essentially unchanged

27. On hot days, we sometimes seem to see pools of water on the road ahead when the road is actually dry. The best explanation of this phenomenon is:

A. upward refraction of light by warm air
B. reflection of light from the surface of the road
C. diffraction of light rays obliquely hitting the road
D. reflection of light by dust and other pollutants in the air

28. Two lamps, one having an intensity of 20 candles and one having unknown intensity are placed on a photometer. Both sides of the indicator are equally luminated when the distance to the 20 candle source is 1/2 the distance to the unknown. The intensity of the unknown source is:

A. 5 candles
B. 10 candles
C. 40 candles
D. 80 candles

29. What is the illuminance at a point on a surface five feet below a 100-w (approximately 100 candles) bulb?

A. 4 lumens/ft^2
B. 25 lumens/ft^2
C. .04 lumens/ft^2
D. .25 lumens/ft^2

30. If one needed a mirror which would produce a wide angle, reduced, erect image he should choose a :

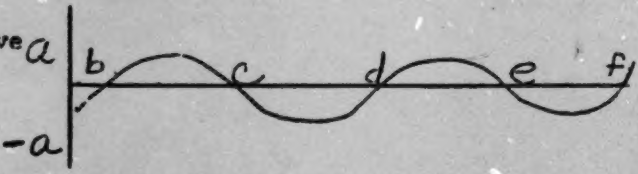
A. plane mirror
B. concave mirror of small aperature
C. concave mirror of large aperature
D. convex mirror

31. Which of the following do we see primarily due to reflected light?

A. the moon
B. the planets
C. other humans
D. all of the above

32. Which of the following is NOT true of the wave pattern shown?

A. the pattern represents a transverse wave
B. the pattern represents a sound wave
C. λ = bd
D. the amplitude = a



33. If an object is placed 15cm from a converging lens the focal length of which is 10cm, the image will be:

A. virtual and enlarged
B. real and reduced
C. enlarged and inverted
D. none of the above

34. An object 5.0cm tall is placed 20cm from converging lens. A real image is formed 10cm from the lens. The focal length of the lens is:

A. 0.15cm
B. 2.25cm
C. 6.67cm
D. 15.00cm

35. The frequency of visible light is less than that of:

A. infared rays
B. x-rays
C. cosmic rays
D. untraviolet rays

36. The speed of light through an unidentified solid is 1.50×10^8 m/sec. The index of refraction of the solid is:

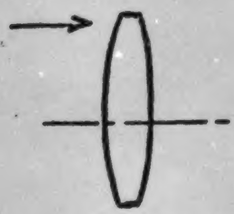
A. 200
B. 20
C. 2
D. None of the above

37. Polarized light consists of waves which all:

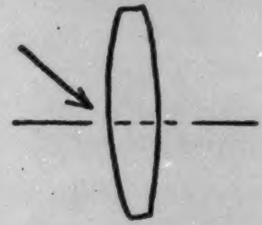
A. vibrate in the same direction
B. vibrate in an infinite number of directions
C. have the same wave length
D. have the same frequency

38. Which ray of light will NOT be noticeably refracted by the convex lens?

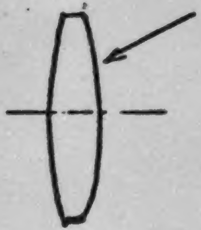
A.



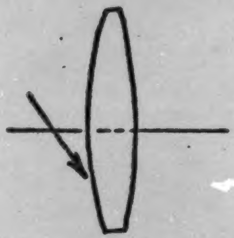
B.



C.



D.



39. Which of the following is most likely to be true of a nearsighted individual?

A. the image is formed in front of the retina
B. the eyeball is too short
C. the lens is too flat
D. the eye muscles are weak

40. A convex mirror with focal length of 15 will produce a real, inverted image if:

A. the object is placed 30cm in front of the mirror
B. the object is placed 20cm in front of the mirror
C. the object is placed 15cm in front of the mirror
D. none of the above

41 The amount of diffusion of a beam of light striking a surface is determined mainly by:

A. the frequency of the light
B. the regularity of the surface
C. the color of the surface
D. the index of refraction of the surface

42. Which properties are NOT common to both sound and light?

A. reflection at the surface of a medium
B. interference where two waves are superimposed
C. greater speed in a vacuum than in air
D. rectilinear propagation within a uniform medium

43. Motion of a source of sound toward a listener causes the pitch of the sound to:

A. become lower because the number of vibrations per second reaching the listener is greater than the number actually produced.
B. become higher because each successive vibration has a shorter distance to travel to the listener causing the vibrations to arrive more frequently
C. become higher because the intensity of sound increases as the distance to the source decreases
D. become lower due to destructive interference as waves arrive out of phase

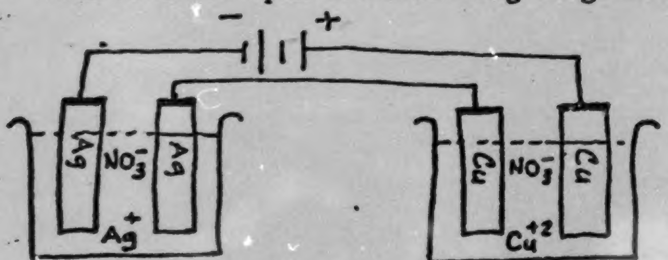
44. Conditions are favorable for resonance to occur if:

A. the natural vibration rates of two objects are the same
B. waves are reflected so that a compression of a reflected wave unites with a rarefaction of a direct wave
C. two waves have the same wavelength
D. two waves have the same amplitude and intensity

45. Which of the following best describes an electric field?

A. A region in space in which an electric force acts on a charged object brought into the space.
B. A set of lines drawn to show the direction a positively charged body will move if brought close to an object having a residual negative charge
C. A region of uniform electrical potential surrounding a charged body.
D. A set of lines drawn to show the direction a positively charged body will move when brought close to an object having a residual positive charge.

Questions 46 and 47 will be based upon the following diagram:



46. Which of the following will be true, if the electrical energy supplied is sufficient to cause oxidation and reduction?

A. The number of silver and copper ions in solution will decrease.
B. Silver and copper atoms will gain electrons as they go into solution.
C. Copper and silver will plate out at the positive electrodes.
D. The same quantity of charge will pass through each cell.

47. Which of the following will be true of the copper and silver plated out?

A. The number of silver atoms plated out will be twice the number of copper atoms plated out.
B. The number of silver atoms plated out will be equal to the number of copper atoms plated
C. The weight of silver plated out will be equal to the weight of copper plated out.
D. The weight of copper plated out will be twice the weight of the silver plated out.

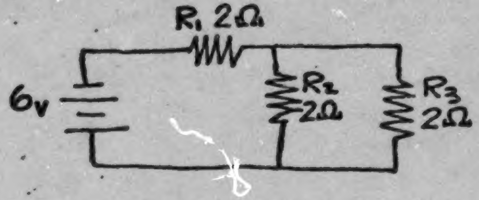
48. When a negatively charged rod is brought close to the knob of an uncharged electoscope the leaves diverge because:

A. both leaves become positively charged
B. protons move toward the knob giving both leaves a negative charge
C. electrons are repelled from the knob giving both leaves a negative charge
D. none of the above

49. A material strongly attracted by magnets and having high permeability is said to be:

A. diamagnetic
B. paramagnetic
C. ferromagnetic
D. magnetic

50. What is the total resistance of the circuit pictured below?



A. 6 ohm
B. 4 ohm
C. 3 ohm
D. 2 ohm

51. What is the current through R_2 above?

A. 3.0 amp
B. 2.0 amp
C. 1.0 amp
D. 0.5 amp

52. The resistance of a metallic conductor increases as:

A. the temperature of the conductor increases
B. the length of the conductor increases
C. the cross sectional area of the wire decreases
D. all of the above

53. The capacitance of a capacitor may be increased by:

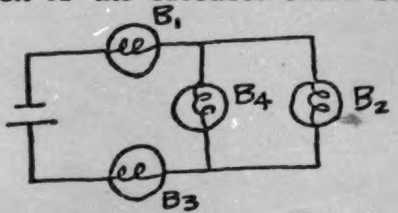
A. decreasing the size of the plates
B. placing a material having a higher electric constant between the plates
C. increasing the potential difference across the plates
D. increasing the distance between the plates

Four light bulbs are arranged in a network with a source of emf. By unscrewing one bulb at a time and observing the results it is possible to diagram the circuit.

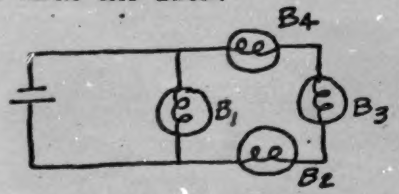
Bulb 1	Bulb 2	Bulb 3	Bulb 4
unscrewed	out	out	out
lighted	unscrewed	lighted	lighted
lighted	lighted	unscrewed	out
lighted	lighted	out	unscrewed

54. Which of the circuits below is consistent with the data?

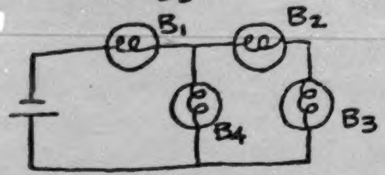
A.



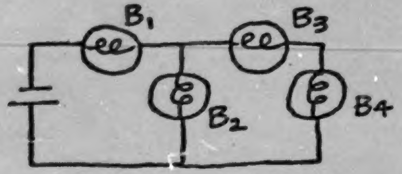
B.



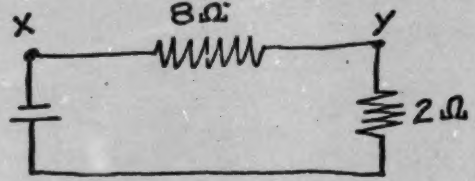
C.



D.



Questions 55 and 56 are based on the following circuit. The current through the 8ohm resistor is .5 amp. Assume that the resistance of the wire negligible.



55. What is the emf applied to the current?

A. 1.5v
B. 3v
C. 5v
D. 20v

56. What is the power expended between circuit points X and Y?

A. 2w
B. 4w
C. 40w
D. none of the above

57. In a house cicuit, use of an excessive number of appliances causes a fuse to blow because:

- A. increasing the number of appliances on the same circuit increases the current through the fuse
- B. increasing the number of appliances on the same circuit increases the voltage across the fuse
- C. increasing the number of appliances increases the equivalent resistance of the group of appliances
- D. increasing the number of appliances on the same circuit increases the amount of heat produced by each appliance

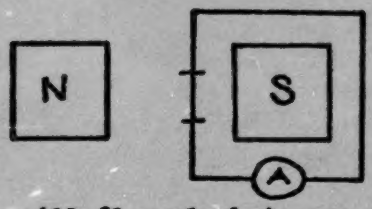
58. Materials that can be strongly magnetized are composed of atoms having:

- A. the ability to easily move in relation to one another
- B. several unpaired electrons in inner shells
- C. complete inner and outer electron shells
- D. a greater number of electrons than protons

59. Which of the following characteristics best accounts for the high electrical conductivity of metals?

- A. Metals consist of long chains of linked atoms which form a pathway for electrical current.
- B. The outer electrons of metal atoms are very loosely held and can easily move from one part of the material to another.
- C. Metals are very dense, having atoms, packed tightly together. Because of the short distances between atoms electrons introduced from a source can easily be transferred from atom to atom
- D. The atoms of metals are arranged so that there are relatively large spaces between atoms. The spaces allow electric current to flow between the atoms much as water flows through a vertical tube containing course gravel.

60. If a wire forming part of a circuit is moved between the poles of a magnet (viewed from above)



- A. electrons will flow clockwise as the wire is moved upward through the field
- B. horizontal movement of the wire between the poles will result in a zero or near zero ammeter reading
- C. the direct current produced by moving the wire up and down could be used to do work in the external circuit
- D. the emf induced will be independent of the rate of vertical movement of the wire

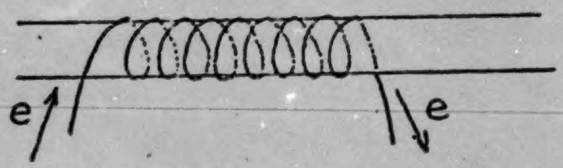
61. The general principals illustrated by the motion of the wire in question 60 are put to practical use in:

A. electric motors
B. capacitors
C. electric generators
D. transformers

62. The primary voltage leading to a transformer is 2000v. If the turns ratio of the secondary winding to the primary winding is 10, the secondary voltage is:

A. 2×10^{-1}v
B. 2v
C. 200v
D. 2×10^{4}v

Items 63 and 64 are based on the following diagram



63. The strength of the solenoid as an electromagnet could be increased by:

A. increasing the number of coils
B. increasing the current
C. using a core with higher permeability
D. all of the above

64. In which direction will the North Pole of the electromagnet be found?

A. at the left as the solenoid is drawn
B. above as drawn above
C. at the right as drawn above
D. below as drawn above.

65. To keep losses low electrical power is generally transmitted long distances at:

A. high voltage and large current
B. high voltage and low current
C. low voltage and large current
D. low voltage and low current

CAREER TEST

PENTA

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary health program. Through these experiences you have met a variety of health professionals. List the occupational titles of the professionals with whom you spent at least one (1) hour. Examples: public health nurse, laboratory technician, etc.

____

____

____

____

____

____

____

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.

Ten or More Hours of Meeting Time	Less Than Ten Hours of Meeting Time
______________	______________
______________	______________
______________	______________
______________	______________
______________	______________

3. Read the four statements below and circle the one which best describes your feelings about a health career at the time you decided to enter the pre-postsecondary health program.

   A. I had identified a particular health occupation as a fairly definite goal

   B. I had a definite interest in a health career, but was undecided what occupation to consider

   C. I thought I might be interested in a health career and wanted to learn more about the health field

   D. I wasn't particularly interested in a health career, but several other features of the program were attrative to me

4. Respond to question 4 ONLY if you selected STATEMENT "A" in the last item. The occupation I had in mind as I began the program was ______________________________.

5. Read the next four statements and circle the one that best applies to your AT THIS TIME.

   A. I have identified a particular health occupation as a fairly definite goal.

   B. I have a definite interest in a health career but I am still undecided which occupation to select as a goal

   C. I am still considering a health occupation, but I am also, interested in several careers that are not health related

   D. I am not seriously considering a health career

Respond to question 6 a, b, c ONLY if you selected STATEMENT "A" in item 5

6a. The occupation I have identified is ______________________.

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

____

____

____

____

____

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

____

____

____

____

Answer question 7 a, b ONLY if you selected STATEMENTS "B" or "C" in item 6

7a. Which health occupations are you considering?

____

____

____

7b. Choose ONE of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

____

____

____

____

8. Read the following statements and circle the one which best describes how your interest in a health career has changed while you have been in the program.

A. My interest in a health career has increased
B. My interest in a health career has remained about the sam
C. My interest in a health career has decreased

Answer the following open-ended questions as completely as possible.

9. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of health careers.

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in health? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a health career. Describe some of these topics or activities and explain how they have affected your understanding of health career.

STUDENT ANSWERS TO THE PENTA CAREER TEST

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary health program. Through these experiences you have met a variety of health professionals. List the occupational titles of the professionals with whom you spent at least one hour.

Medical College Clinics-Licencsed Practical Nurse and RN, Medical College Clinics- Specialized Doctors-Genetics, Prosthesis, Pharmacist, Social Worker, Physcologist, Pathologist, Dietician, X-Ray Technicians.

X-Ray Technician, Public Health Nurse, Nurses, a Gynecologist, Dentist, Nuclear Scientist, Electron Microscope Scientist, Social Worker, Physical Therapists, Psycologist, Public Relations Person for Abortion Clinic, Nurse Clinician, Lab Technologist, Dietician, Pathologists, Orthrodontist, Prothesis, Pharmacist.

Dr. Hardin Toledo Zoological Vet
Dr. Spin-Vet
Dr. Can-Vet
Dr. Mayor-Dentist, and more.

RN, LPN, Chaplins Surgeon, GP, Professors, Neurologist, Psychologist, Pathologist, Osteopath, Hospital Administrators, X-Ray Technicians. There are more, but it is almost impossible to remember everyone I had one hour of contact with in the past two years.

Physical Therapist, Nurses, Doctors, Dentist, Dietician, Laboratory workers Child Care Worker, Pathologist, More but can't remember all-brief overview.

Biochemist, Pharmacist, Social Worker, Nurse, Pathologist, Prosthesis, Dietician, Psychologist.

Child Care Workers, Physical Therapist, Laboratory Technician, radiology technician, dentist, veterinarian, dietician, prosthetist, nurse, radiologist.

Dietician, X-Ray Technician, Dentist, Doctor, Lab Technician, Child Psychologist, Prosthetician, Pediatrician, Vet, Biology Professor, Electron Microscope Operator, Physical Therapist.

Pharmacists, Physical Therapists, Tour Directors at; Atomic Energy Plant, Public Health Dept., Vet at Toledo Zoo.

Dietician, Pathologist, Pharmacist, Psychologist, Veterinarian, Lab Tech.

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles of health professionals you have visited into two columns to indicate the amount of time spent with each type of professional.

Ten or More Hours of Meeting Time

Nurses, Doctors, Social Workers.

Nurse Clinician, Lab Technician, Nurses.

Vet, Research at Zoo, Professor, Dentist, G.P.

RN, LPN, GP, Professors, Psychologist.

Child Care Workers, Nurses.

Social Worker.

Child Care Worker, Physical Therapist.

X-Ray Technician, Doctor, Pediatrician, Child Psychologist, Biology Professor, Prosthetician.

Never worked or watched any professional for this length of time. Most refused observers and others didn't want untrained help.

Nurses, Hospital Transport.

Two to Ten Hours of Meeting Time

Pharmacist, Dietician, X-Ray Technicians.

Gynecologist, Public Health Nurse, Dentist, Electron Microscope Scientist, Physical Therapists, PR from abortion Clinic, Prosthesis Specialist, Pharmacist.

Dr. Mayor-Dentist, Dr. William-Histology, Pharmacist.

Chaplins, Surgeon, Neurologist, Pathologist, Osteopath, Hospital Administrators, X-Ray Technicians.

Physical Therapist, Nurses, Dentist, Dietician, Lab Workers, Pathologist (this can contain all our field trips).

Pathologist, Pharmacist, Biochemist, Dietitian, Psychologist, Prosthesis.

Labotatory Technician, Radiology Technician, Dentist, Vet, Dietician Prosthetist, Nurse, Radiologist.

Dietician, Dentist, Vet, Phy. therapist, Elect. Mic. Operator, Lab Tech.

Pharmacist, Dentist.

Ambulance Attendant, Doctor, Physical Therapist, X-Ray Technician.

16. The occupation I had in mind as I began the program was

Nursing.

Gynecologist and obstetrician.

Vet

MD of some type.

Child Psychologist.

No Comment.

No Comment.

Inhalation Therapist.

Pharmacist.

MD

18a. The occupation I have identified is

MD.

No Comment

Pharmacist

No Comment

No Comment

Child Psychologist.

Psycholgist/MD

Vet. Res.

Gyn. and OB.

Nursing-Registered.

18b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

Two years of nurses training-Associate degree-RN

Four years college, three or four years med school, 1 year intern, three or four years as resident.

Four years pre-vet, four year grad, two year specialiast.

Pre-med, graduate school, intern, residency.

Psychology, Sciences, Math, Biology.

No Comment.

No Comment.

Five years of college.

No Comment.

College, Med School, Internship, Residency.

18c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

Ohio State University, Michigan State, Case Wastern.

No Comment.

University of Toledo, Stanford, Ohio University.

No Comment

No Comment

Bowling Green University, Witt[illegible]berg University, Michigan University Ann Arbor.

Oberlin College, Wittenberg College, Ohio State University.

Ohio State University, University of Munich, University of Switzerland.

Ohio State University, Toledo University, Mc Gill University, UCLA, USC.

Owens Technical College, Bowling Green, St. Vincent Hospital School of Nursing.

19a. Which health occupations are you considering?

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

General Practitioner, Physical Therapist, Dentistry.

Physician, Physical Therapist, Laboratory Technician.

No Comment.

No Comment.

No Comment.

19b. Choose ONE of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

No Comment.

General practitioner-four years of college, with good standing in the sciences and math, plus four years of medical school, including intern and residence training.

Physical Therapist-I must first obtain a bachelor of science degree, take a year of training at a physical therapy school, have a year of practical experience, take the state board exam.

21. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations.

My work at the Sunshine Children's home helped interest me in working with people in general and more specifically with children. This points toward the health profession since it has many opportunities to come in contact with people. I found physical therapists were allowed to work with patients on a more personal basis than in some professions. Of course, doctors and dentists, as well as veterinarians have the most attractive wages. I found that I didn't enjoy dentistry after observing it for a couple hours. Performing surgery on animals doesn't seem as important as it does for people, so veterinary medicine doesn't interest me.

The several health-oriented field trips were very interesting. However, I think the fact that many years of post-secondary education is necessary has decreased my interest in the medical profession. However, in the middle of our last year here I became involved with children. I worked at a place called Woodlane, a school for mentally and physically handicapped. I really enjoyed working with these 1-4 year old Cerebral Palsy kids, and my experiences there opened yet another door to my future. I spent sometime talking to the child Psychologist there and discovered his line of work very interesting.

I don't care what people think of males working with little kids, I like little kids and want to work with them.

The contacts I had with health professionals were usually short. I was not interested in the fields of most of the professionals. Though they were interesting within themselves most had little value.

I will have to have two years of training that I know and I may later go into the health field deeper.

During field trips I have found that I like nursing especially in the pediatric departments.

About four years ago I considered going into medical lab technology and I may sometime yet after I've had a crack at nursing.

I worked at Planned Parenthood since January 6, 1975. I learned many things about diseases treatment, bed side manner, ect... At work I was responsible for Hemoglobin test, urine analysis, pregnancy test, and doctor's assistant. I know I will be a nurse clinician if I can't make a gyn. The abortion clinic was very interesting. I have been invited to see an abortion when I'm ready for it. I'm now beginning to see the whole spectrum of my career. My only occupational disadvantages are now I will have a hard time finding time to spend with my children and husband. I wish people would stop being afraid to talk about their bodies. I'm out to try to change that.

I have learned about different fields in the medical professions and also believe this to increase my interest in medicine and increased my interests. I have been able to deal with things which I would be unable to deal with otherwise. I really like working with the doctor at the Zoo and learn about Vet work also and spend time with Dr. Carr who deals in household pet work. Also I work with Dr. Spies who deals with dairy cattle and other farm animals.

In talking with various related health professionals I have learned much about what goes on in the health fields and how many people feel about their jobs.

I have found out what these professionals consider as being "ideal" jobs, what their feelings are towards others both

in and out of related fields.
I have found what requirements are needed for entering the various fields and I have found out what many professionals feel needs to be done in their fields entrance requirements. All in all, I feel that the field trips were worth while and a major necessary part of the program.

The one contact that has influenced me the most is what I am doing right now. I have and still am a volunteer at Sunshine Childrens Home, for retarded and handicapped children. I enjoy it first because I love children and want to center my career around them. Secondly I have a direct relationship with them and I enjoy it tremendously. One of the nicest things about this is that I have no disadvantages just advantages because of the personal satisfaction out of helping and seeing how I have helped a child learn how to crawl, talk, and walk. It's the only form of work I enjoy-being with kids.

One of my most valuable experiences was working with severely retarded and malformed children in the Sunshine Children's Home. From my experiences in this home I concluded the following, as a guideline to my professional future. Although my interest in pursuing one of many health careers has increased, I will follow my judgements in dealing with patients.
1) Hopeless cases involving genetical disorders such as Ty-Sachs disease, and the cry-of-cat syndrome, should not be a burden to the taxpayer and should be eliminated from our society.
2) Any individual at least partially mentally capable of taking care of themselves and becoming a productive citizen should have as much encouragement and training from health professionalsas possible. Ex:Mongoloids.
Since I worked with the extreme-the totally hopeless, I will stand by my judgment that during my medical career, I will support euthanasia, as well as training programs through legislation if possible.

It did not change my interest. Most of my information was relayed via articles from T.V. None of the experiences had any bearing on my attitude about being a pharmacist. I entered this program for the schooling advantages.

22. In what way have classroom or laboratory based learning influenced your interest in a future career in health?

I enjoy working in the chemistry lab. so I am interested in being a laboratory technician, dissecting in anatomy and physiology was interesting, and I know it won't bother me to work in emergency situations. Learning to use microscopes, stethescopes, blood pressure gauges, and other such medical equipment was helpful preparation.

Mr. Sickeres, our biology chemistry physiology, and our physics teacher, made the whole program worth while.

Though I may not be interested in a health profession, I think this man deserves a lot of credit for the work he did. He is the only one, in my opinion, who earned his money.

Only our science courses really related to and helped us to understand our futures in health. Our texts were chosen specifically to give us what would be needed and our physics book was designed for the life science.

The contacts I had with health professionals were usually short. I was not intrigued in the field of most professionals. Though they were interesting within themselves most had little value.

No Comment.

My classroom or laboratory based learnings, influences has been great. We have taken blood pressure, blood test, and everything else. There activities have stimulated my interest in the health career.

There was quite a bit that influenced me towards psychology and towards a degree in neurology-specifically nerve stimulation dissection, readings, classroom lectures, and classroom question and answer period. The classroom experiences have opened my eyes to what is involved with the study of medicine,

It's hard to pick out the specifics because in our science class we have done everything and it all has contributed to my learning. Such as community diseases, blood analysis etc. I can fill this page plus more of all the things Mr. Sickeres has taught us. I want to say that he is probably the one that has kept me in the program and gave me the understanding and interest I have of health careers.

Specifically, the sciences offered at Owens Tech. arose a curiosity in me that will have no end. Chemistry experiments were also worthwhile. A person instantly becomes aware of the everyday things that are taken for granted are the outcome of long tedious chemical processes that compile one "simple" substance. Math wasn't much last year, but it has picked up since. All in all it was worthwhile.

I believe my science teacher, Mr. Siekeres, made my interest in this program. He's the best teacher I've ever had. He made this program superior.

APPENDIX Y

LIFE SCIENCE TEST
Pre-Postsecondary Program
Firestone High

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. The process of ossification is important in the formation of:

   A. nerve tissue
   B. proteins
   C. bones
   D. white blood cells

2. The longest and strongest bone in the human skeleton is the:

   A. humerus
   B. tibia
   C. clavicle
   D. femur

3. Which of the following gases in the blood exerts control over the rate of breathing?

   A. oxygen
   B. carbon dioxide
   C. water vapor
   D. mitrogen

4. Frequent exercise will increase the size of the muscles being used. This happens because:

   A. the stimulation causes a large number of new muscle cells to form.
   B. the amount of cytoplasm in individual muscle cells is increased
   C. fluid collects between the muscle fibers
   D. the blood flow to the muscles is maintained at a higher level

5. The digestion of protein begins in the:

   A. mouth
   B. stomach
   C. small intestines
   D. large intestines

6. A man with Rh+ blood:

   A. may safely receive blood from an Rh- individual having the same blood type
   B. cannot produce an Rh+ child when paired with a woman having Rh- blood
   C. may safely be a blood donor for a Rh- relative who needs transfusions on a regular basis several months apart.
   D. lacks blood proteins that are present in Rh- individuals

7. Food moves through the digestive tract by means of muscular contractions called:

   A. deamination
   B. diastolic pressure
   C. peristalsis
   D. deglutition

8. Vigorous exercise results in an increase in:

   A. the number of red blood cells
   B. the rate of breathing
   C. blood pressure
   D. all of the above

9. If the ability of an individual to produce acetylcholine were blocked he would:

   A. not be able to digest fats
   B. become anemic
   C. not be able to utilize vitamin C
   D. would not be able to contract voluntary muscles

10. Inflation of the lungs takes place when the diaphram:

    A. is relaxed, increasing pressure within the thoracic cavity
    B. is contracted, increasing pressure within the thoracic cavity
    C. moves downward, decreasing pressure within the thoracic cavity
    D. moves upward, decreasing pressure within the thoracic cavity

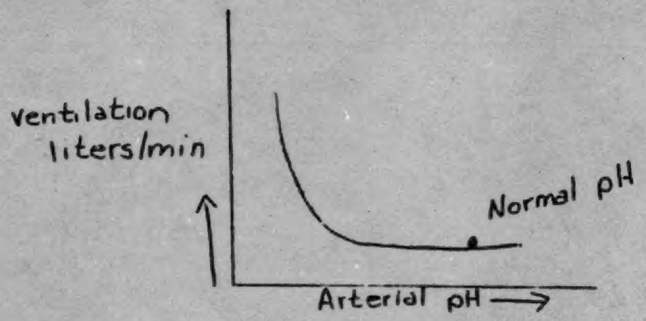
11. Which is the correct sequency of flow for blood entering the heart from the superior or inferior vena cava?

    A. right ventricle, left ventricle, pulmonary artery, pulmonary vein, right atrium, left atrium, aorta
    B. right atrium, right ventricle, pulmonary artery, pulmonary vein, left atrium, left ventricle, aorta
    C. left ventricle, left atrium, pulmonary artery, pulmonary vein, right ventricle, right atrium, aorta
    D. none of the above

12. Which of the following diseases is NOT related to regulation of blood cell numbers?

    A. anemia
    B. leukemia
    C. chronic lead poisoning
    D. diabetes

13. Which of the following is a correct interpretation of the graph shown below?



    A. an increase in blood acidity is associated with a larger volume of air moving through the lungs
    B. a decrease in blood acidity causes an increase in the volume of air moving through the lungs
    C. a small increase in pH will lead to a large increase in ventilation
    D. none of the above

14. Leukocytes most closely resemble the:

    A. amoeba
    B. planarian
    C. paramecium
    D. euglena

15. Which of the following is NOT an important function of the circulatory system?

    A. maintenance of water content of tissues
    B. protection against disease
    C. distribution of nutrients
    D. regulation of enzyme activity

16. Which of the following sequences correctly outlines the path of the impulse following the body's interception of external stimuli?

    1. receptor
    2. dendrite
    3. synapse
    4. axion

    A. 1-2-4-3
    B. 1-2-3-4
    C. 1-3-2-3
    D. 1-3-4-2

17. Which of the following is most generally true of parasites?

    A. parasites seem to infect different species of animals more or less at random
    B. parasites are adapted to withstand immunological reactions of the host
    C. successfully adapted parasites kill their hosts
    D. parasites cannot exist for more than a few minutes outside the body of a host

18. When a host and the organisms living in or on the host are dependent upon one another and their relationship is beneficial to both, the relationship is called:

    A. mutalism
    B. parasitism
    C. commensalism
    D. obligatism

19. Which of the following parasites belong to the phylum platyhelminthes?

    A. hookworm
    B. tapeworm
    C. fluke
    D. ascarid

20. Which of the following enters the human body by means of active penetration?

    A. ascaris lumbricoides
    B. hookworm
    C. trichina worm
    D. pinworm

21. The step in preparation of specimens in which the organism is killed and hardened is called:

    A. dehydration
    B. fixing
    C. steaming
    D. luthanasice

22. Warm solutions are often used when killing worm specimens in order to:

    A. prevent curling of specimens
    B. remove mucus
    C. make the specimens easier to strain
    D. make the specimens more transparent

23. As specimens are dehydrated and cleared it is necessary to be very careful to:

- A. avoid washing out stains
- B. keep the solution acidic
- C. avoid removing all of the water in the specimen
- D. avoid sudden changes of solutions

24. Which of the following infects the human body by means of eggs ingested with food and water?

- A. hookworm
- B. trichina worm
- C. malarial parasite
- D. pinworm

Items 25 and 26 will be based on the description below.

When belted kingfishers are available for examination, adult parasites of the species uvulifer amloplitis are likely to be found in the small intestines. The natural life cycle of the parasite is summarized as follows:

1. eggs voided in feces of kingfisher
2. eggs hatch in water within three weeks
3. miracidia enter snails
4. miracida transform into sporocysts which eventually produce cercariae
5. cercariae encyst in bass and related species
6. kingfisher consumes fish containing encysted parasite

25. The life cycle of uvulifer ambloplitis is an example of a/an

- A. direct life cycle
- B. indirect life cycle
- C. intermediate life cycle
- D. cystic life cycle

26. Which of the following is correct?

- A. The kingfisher is called the primary host because it is the highest order animal infested.
- B. The kingfisher is called the primary host because it is the host in which the parasite reaches adulthood.
- C. The miracidia is called the primary host because it is the first organism infected during the life cycle.
- D. The snail is called the primary host because it is an important part of the life cycle of many different parasites.

27. If a sample of microorganisms contains several species it is common to culture the sample in or on a solid medium rather than a liquid one because:

    A. microbes are likely to grow more rapidly in a solid medium
    B. it is easier to obtain pure cultures in a solid medium
    C. solid mediums are more easily prepared
    D. liquid mediums are usually more expensive

28. The freeing of an object or substance from all life of any kind is called:

    A. sterilization
    B. antisepis
    C. disinfection
    D. coagulation

29. Koch's postulates would be used by a microbiologist who is trying to determine:

    A. the identity of an organism he has grown in pure culture
    B. the virulence of a particular pathogen
    C. how a particular disease is communicated
    D. what organism causes a particular disease

30. If in the course of his daily work, a person is frequently exposed to a communicable bacterial infection but does not become ill:

    A. he must be a carrier of the disease
    B. his body must contain specific antibodies for the disease
    C. he must have acquired or induced immunity to the disease
    D. he must have natural immunity to the disease

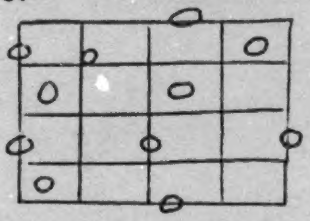
31. After staining, gram-positive bacteria will be:

    A. red
    B. yellow
    C. violet
    D. brown

32. When a hemocytometer was used to take a sensus of microorganisms suspended in liquid, 100 organisms were counted in the large center square. The suspension contained a population of:

A. 1000 organisms/cm^3
B. 10,000 organisms/cm^3
C. 100,000 organisms/cm^3
D. 1,000,000 organisms/cm^3

33. How many organisms should be recorded as appearing in this medium-sized hemocytometer square?



A. 11
B. 10
C. 8
D. 5

34. If the number of cells counted in the first large square of a hemocytometer, is 120, how many more large squares should be counted before determining the number of cells/cm^3?

A. 0
B. 1
C. 2
D. 3

35. In what order are the following operations performed during gram staining?

1. flooding with crystal violet
2. flooding with 95% ethyl alcohol
3. rinsing with water
4. flooding with a safranin solution
5. flooding with an iodine solution

A. 1-5-2-3-4
B. 5-2-1-3-4
C. 2-5-3-4-1
D. 5-3-1-4-2

36. Negative staining results in slides on which:

A. the bacteria take up methylene blue
B. the bacteria appear to be colorless against a dark background
C. the bacteria are uniformly covered with stain making it diffiult to see detail
D. cell walls appear dark while the rest of the bacteria appears to be transparent

37. Which of the following is NOT used as a basis for classifying and identifying bacteria?

A. cell shape
B. staining reactions
C. physiological characteristics
D. rate of growth

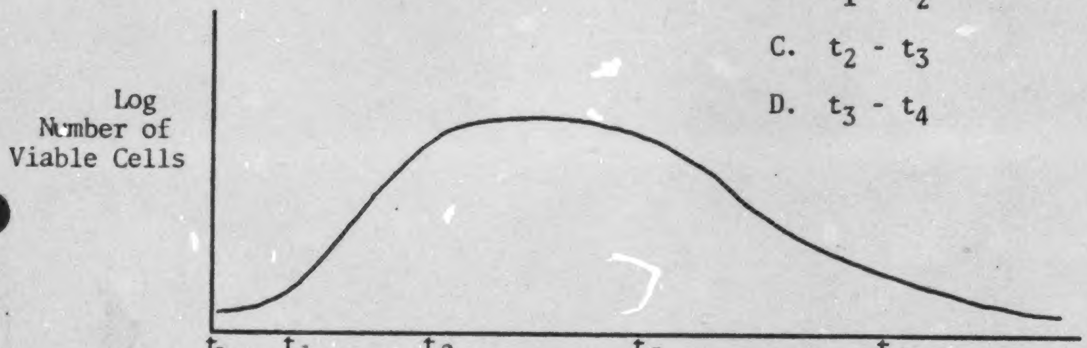
The sketch below shows a typical growth curve. The time period in which the production of new cells is balanced by the deaths of other cells is:

A. $t_0 - t_1$

B. $t_1 - t_2$

C. $t_2 - t_3$

D. $t_3 - t_4$



The phase of growth which occurs between t_0 and t_1 in the curve above is called the:

A. stationary phase
B. logarithmic phase
C. dormant phase
D. latent or lag phase

39. A handing drop preparation using a hollow ground slide is especially helpful in

A. observing algae
B. determining motility
C. identifying antibodies
D. detecting bacterial mutations

40. Paramecia and bacteria:

A. both lack cell walls
B. both possess nuclear membranes
C. both move by cilia
D. both contain DNA

Items 41 through 47 are based on the sketch of the abdominal viscera of the cat.

41. The organ labeled 1 is the:

A. gall bladder
B. kidney
C. duodenum
D. spleen

42. The organ labeled 2 is the:

A. pancreas
B. spleen
C. stomach
D. liver

43. The organ labeled 3 is the:

A. pancreas
B. liver
C. lung
D. kidney

44. The organ labeled 4 is the:

A. stomach
B. descending colon
C. small intestine
D. urinary bladder

45. The organ labeled 5 is the:

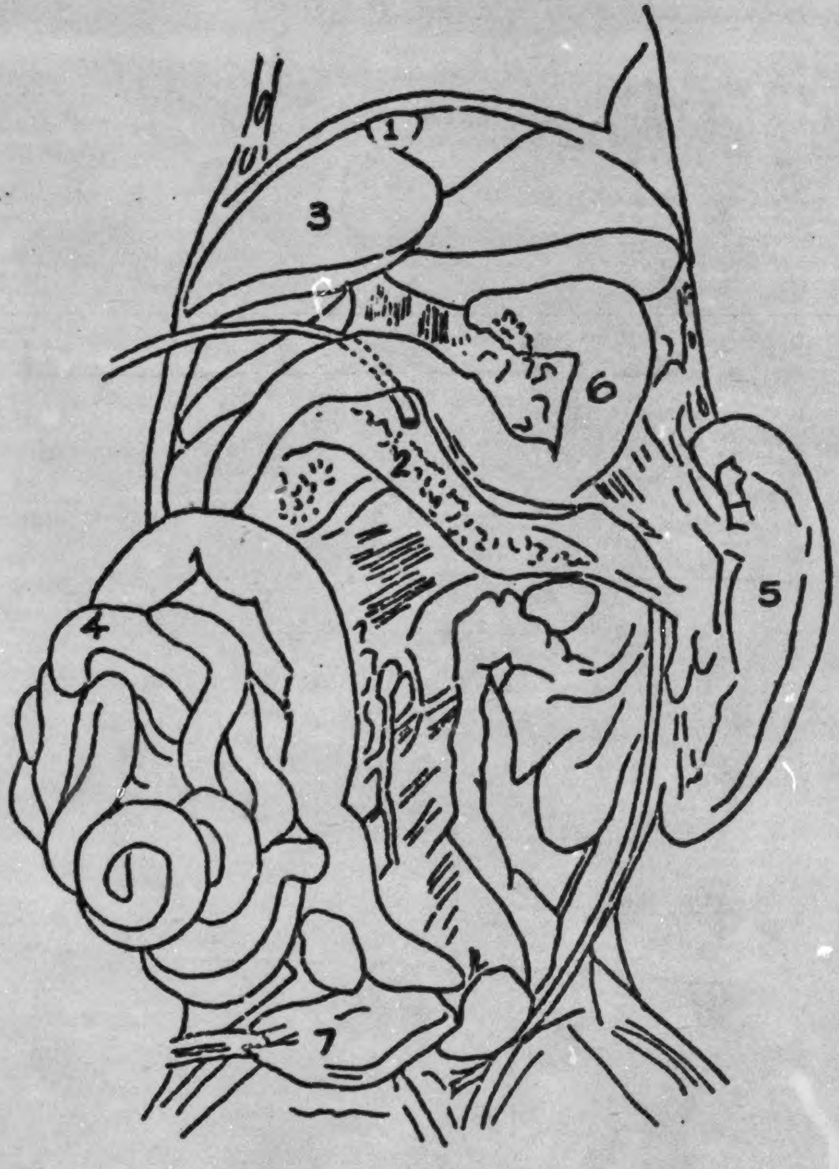
A. kidney
B. gall bladder
C. spleen
D. ovary

46. The organ labeled 6 is the:

A. spematic cord
B. large intestine
C. spleen
D. stomach

47. The organ labeled 7 is the:

A. gall bladder
B. urinary bladder
C. overy
D. ductus deferens


1
3
6
2
5
4
7

Items 48 through 53 are based on the sketch of the brachial structure of the cat.

The structure labeled 1 is the:

A. carotid artery
B. precava
C. intercostal vein
D. aortic arch

49. The structure labeled 2 is the:

A. carotid artery
B. cervical nerve
C. external jugular vein
D. coronary vein

50. The structure labeled 3 is the:

A. aorta
B. external jugular vein
C. innominate vein
D. radial nerve

51. The structure labeled 4 is the:

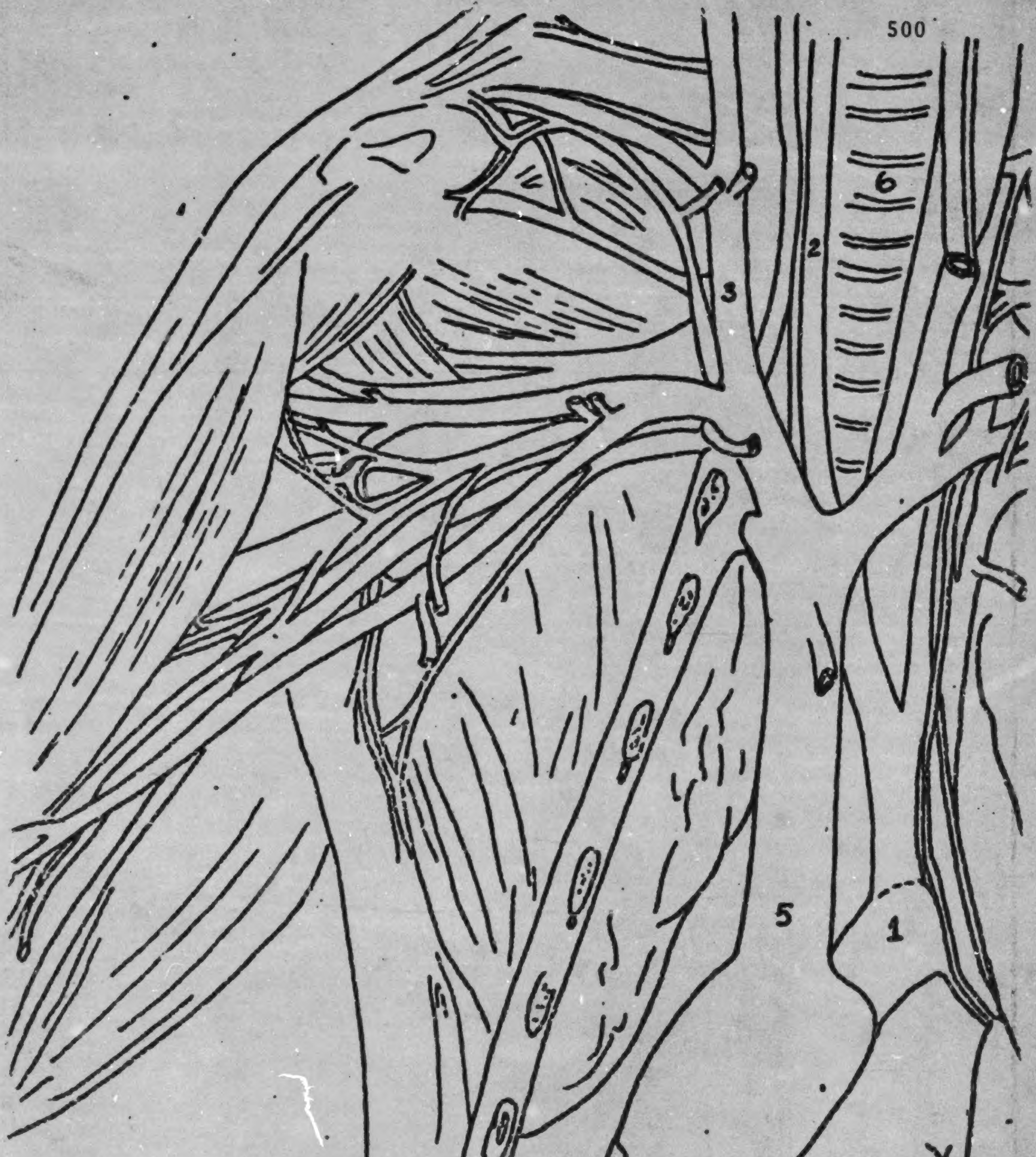
A. right atrium
B. right ventricle
C. left atrium
D. left ventricle

52. The structure labeled 5 is the:

A. precava
B. pulmonary artery
C. axillary artery
D. brachial vein

53. The structure labeled 6 is the:

A. triceps
B. deep brachial artery
C. trachea
D. esophagus


500
6
2
3
5
1
4

54. Which of the following is NOT a continuous variable?

A. the temperature of a sample taken at regular intervals
B. the time required to assemble a kit
C. the age of participants in a workshop
D. the number of cars passing a point in a given amount of time

55. Statistical tests have shown that the incidence of pellagra is significantly greater among poverty level families than among the general population. This proves that:

A. poverty conditions cause pellegra
B. pellagra results from poor nutrition
C. pellagra and poverty have a common cause
D. none of the above

56. A physical therapist finds that a patient he has just tested for manual dexterity scored one standard deviation below the published mean for the test. This means that with respect to the individuals taking the test when the mean was established the patient scored higher than about:

A. 2 percent of the individuals
B. 16 percent of the individuals
C. 6 percent of the individuals
D. 84 percent of the individuals

57. If the mean of the manual dexterity test is 53 and the standard deviation is 5, the raw score of the patient in the previous example is:

A. 48
B. 50
C. 53
D. 58

58. It is known that approximately 10% of the white population of the United States possess type B blood. It is also known that approximately 15% of the people have Rh- blood. What is the probability that a particular white individual you meet on the street will have B negative blood?

A. 7.5%
B. less than 2%
C. 25%
D. 40%

54. Which of the following is NOT a continuous variable?

A. the temperature of a sample taken at regular intervals
B. the time required to assemble a kit
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A. 7.5%
B. less than 2%
C. 25%
D. 40%

[illegible]9. Which of the following is NOT a legitimate use of the t test?

A. determining whether two samples came from the same population
B. determining whether differences are due to chance
C. determining the degree to which variables are correlated
D. determining whether a null hypothesis holds

60. In the course of a statistical test to determine whether the means of two samples are statistically different, t was determined to be 2.845. There were ten individuals in each sample. Using the t tables provided, it is possible to determine that:

A. $0.1 > p > 0.05$
B. $0.05 > p > 0.01$
C. $p = 0.01$
D. $p < 0.01$

61. If the t tables yield a probability between 0.05 and 0.01:

A. the null hypothesis should be rejected at the 0.01 level
B. there is less than five chances in 100 that we will be in error by not rejecting the null hypothesis
C. we can be 99% certain that we are not making a mistake
D. the probability that we will make a mistake by rejecting the null hypothesis is less than 5 chances in 100.

62. The principal reason that abstracting and indexing of scientific papers is important is that:

A. information is published in hundreds of different journals
B. a number of important journals are written in foreign languages
C. abstracting services edit researchers' papers increases readability
D. non-essential information is omitted from abstracts and indexes

63. If you were reading a paper published in a scientific journal, which of the following would you be LEAST likely to find?

A. the authors address
B. references to earlier studies related to the topic
C. graphical presentation of data
D. a description of experimental procedure

64. If you are interested in investigating the amount of carbon monoxide in cigarette smoke and you plan to use Biological Abstracts in your search of the literature, you should first:

A. turn to the author index
B. look through the abstracts to find the section dealing with carbon monoxide
C. use the topic index to find out what serial number has been assigned to papers dealing with carbon monoxide
D. look in the topic index for the words carbon monoxide

65. Which of the following is most widely read by the non-scientist?

A. Plant Physiology
B. Science
C. Scientific American
D. American Journal of Botany

66. Research proposals are usually written in a formal style. Although two proposed studies may differ widely in actual experimentation, the format of the proposal is fairly standard. Some of the elements or sections found in proposals are listed below.

1. rationale, or reason that study should be done
2. statement of problem
3. procedure
4. review of literature

The order that these elements are most likely to appear is:

A. 1-2-3-4
B. 1-2-4-3
C. 2-1-4-3
D. 2-4-1-3

Questions 67 through 72 are based on the research project described below.

A group of scientists studying monkeys in their native settings encamped in the jungle for several months. Before long, some monkeys accepted the scientists and visited them regularly for handouts since food was somewhat scarce. A few particularly friendly animals were even jokingly given names by the scientists who took advantage of the visits to carefully observe the monkeys. Data gathered on these occasions were included in their report and became the basis for generalizations about the social behavior or monkeys in the natural habitat.

67. Which of the following threatens the validity of the study?

A. the camp setting for observtion
B. reducing the need of the monkeys to compete for food
C. a non-representative smaple of subjects
D. all of the above

68. The scientists believed that there might be a rigid social structure within groups of monkeys. Initial observations indicated that each monkey knew his place and tended to be submissive toward monkeys of higher status.

Which of the following would be the most useful hypothesis statement for this study of status among the monkeys?

A. If a rigid social structure exists, each monkey "will know its place."
B. If a monkey has low status, it will exhibit submissive behavior.
C. If a rigid social structure exists, the frequency with which monkeys submit to others will differ significantly among the monkeys.
D. If a monkey has low status, the observed frequency of submission will be greater than expected by chance alone.

69. Before beginning to take data for this study the most crucial task the scientists face is:

A. ordering and deploying the specialized equipment needed
B. establishing guidelines for determining whether observed behavior is agressive or submissive
C. conditioning the monkeys to make their visits at times convenient for observation
D. setting up rotating schedules for the scientists that observation posts will be manned at all times.

70. Some of the data collected by the group of scientists appeared below. Although many monkeys were observed the table summarizes the behavior of only three subjects

Frequency of Agressive Acts
(% of total interactions)

Recipient of acts	Displayer of Behavior Monkey 1	 Monkey 2	 Monkey 3
Monkey 1		72	54
Monkey 2	29		35
Monkey 3	46	65	

What percentage of the behavior of Monkey 1 toward Monkey 3 was aggressive?

A. 46%
B. 54%
C. 75%
D. the percentage cannot be determined from the information given

71. If the monkeys were ranked from most agressive to least agressive, the order would be?

A. Monkey 1, Monkey 2, Monkey 3
B. Monkey 2, Monkey 3, Monkey 1
C. Monkey 3, Monkey 1, Monkey 2
D. none of the above

Answers to 72 and 73 are to be written out.

A wildlife expert predicted that at certain DDT levels 1/4 of all eggs laid by ospreys would have defective shells. He examined all known nests in the area to be studied. Of the 84 eggs found, 19 were defective.

72. Write a null hypothesis appropriate to the investigation being conducted by the wildlife expert.

73. What statistical test should be used to evaluate this hypothesis?

PHYSICS TEST
Pre-Postsecondary Program
Firestone High

Use the answer sheet provided to record your responses to the test items. Be certain that you use a soft pencil and blacken only one space for each item. If you wish to change an answer make certain that your original mark is completely erased.

1. Researchers consider it good practice to repeat measurements or experiments several times and average the results before drawing conclusions because:

    A. repetition will reduce systematic error
    B. it will be possible to obtain data that are correct to a greater number of significant figures
    C. random errors will tend to cancel out
    D. all of the above

2. In which of the following pairs are both of the given units used to measure the same variable quantity?

    A. newton : dyne
    B. joule : dyne
    C. kilowatts : coulomb
    D. ft-lb : newton

3. Since $F = Ma$ and $F = \frac{Wa}{g}$ it follows that:

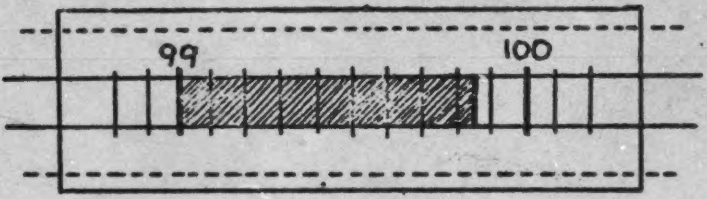
    A. $F = Ma + \frac{Wa}{g}$

    B. $F = \frac{MW}{g}$

    C. $W = Mg$

    D. $g = \frac{M}{W}$

4. The box below contains a sketch of the portion of the thermometer containing the top of the mercury column.



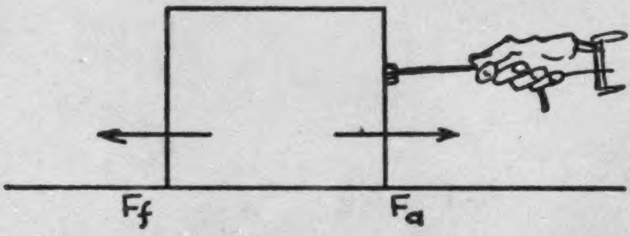
Which of the following best expresses the temperature shown on the thermometer?

A. 99.852°
B. $99.80 \pm 0.05^{\circ}$
C. $99.85 \pm 0.01^{\circ}$
D. $99.950 \pm 0.001^{\circ}$

5. An object weighs less in an orbiting spaceship than on the earth because:

A. The mass of the object is less in space than on the earth.
B. The distance between the object and the center of the earth is greater in orbit.
C. The atmospheric pressure in space is less than that on the earth.
D. Centripetal force due to orbiting reduces the weight.

6. If the block shown in the diagram does not move from a resting position when force F_a is applied:



A. The force due to friction F_f is greater than F_a
B. The force due to friction F_f is less than F_a
C. The force due to friction F_f is equal to F_a
D. The force due to friction F_f is equal to or greater than F_a.

7. Although the layman commonly gives them the same meaning, speed and velocity differ in that:

A. speed is a vector quantity whereas velocity is a scalar quantity
B. the speed of an object is usually less than its velocity
C. velocity is a more complete description of motion than is speed
D. the basic units used to express the two quantities are not the same

8. If the velocity of a body is tripled, its kinetic energy is:

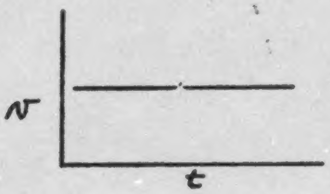
   A. reduced by 1/3
   B. reduced by 1/9
   C. tripled
   D. none of the above

9. If a rifle bullet is fired from a tower at the same time a baseball is tossed outward from the tower:

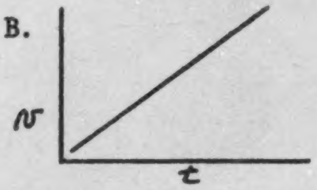
   A. both projectiles will fall the same distance during the first second
   B. both projectiles will travel the same distance outward from the tower during the first second
   C. both projectiles will travel the same total distance during the first second
   D. both projectiles will be moving with the same velocity at the end of the first second

10. Which of the following represents a velocity-time plot for an object moving across a horizontal surface with constant acceleration?

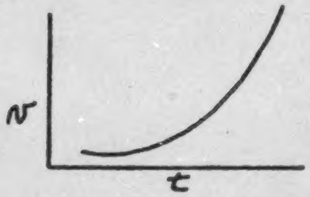
A.



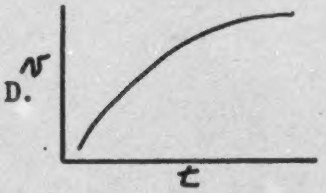
B.



C.



D.



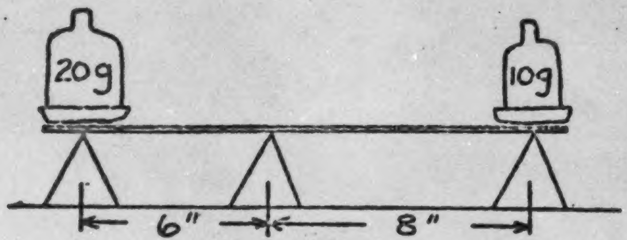
11. A ball with a mass of 0.2kg rolls from rest down an inclined plane 4m long. If its acceleration is $8 m/sec^2$, how much time will elapse before the ball reaches the bottom?

   A. 1 sec
   B. 2 sec
   C. 3 sec
   D. none of the above

12. When calculating the torque produced by the force of gravity on an extended object it is assumed that:

A. the total force acts at a single point
B. the force of gravity is the only force acting on the object
C. the sum of all the torques acting on the body is zero
D. none of the above

13. When supports A and B are removed from the beam holding the weight pans the beam will balance.

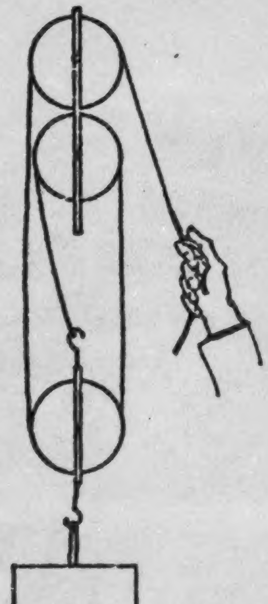


A. with the moveable pans in the position shown
B. if the pan containing the log weight is moved 4 inches to the right
C. if the pan containing the log weight is moved 5 inches to the left
D. none of the above

14. The mass of a crate is 70kg. If it is hoisted 30 meters onto the deck of a boat in 30 seconds, how much work has been done?

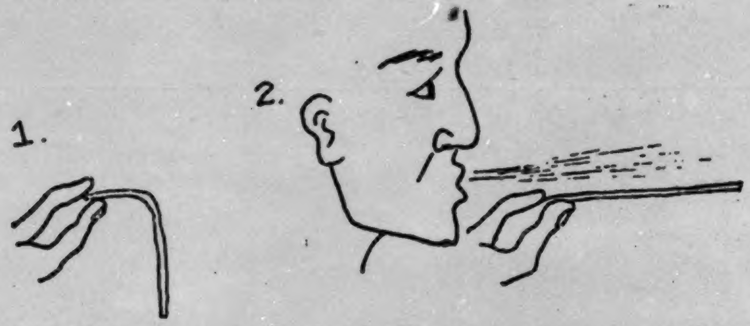
A. 2.1×10^3 joules
B. 6.86×10^2 joules
C. 2.1×10^4 joules
D. 6.3×10^3 joules

15. Which of the following is the best representation of the ideal mechanical advantage of this pulley system?



A. 1
B. 2
C. 3
D. 4

16. The piece of paper hangs limply under normal circumstances, but stands out nearly horizontally when a stream of air is blown across its upper surface. The best explanation of this phenomenon is that:



A. Blowing across the upper surface of the paper decreases the air pressure on that surface
B. Warm air from the mouth is less dense than the cooler surrounding air. Thus warmer air rises
C. Blowing across the upper surface of the paper creates a partial vacuum above the paper
D. Blowing across the upper surface of the paper creates a partial vacuum below the paper.

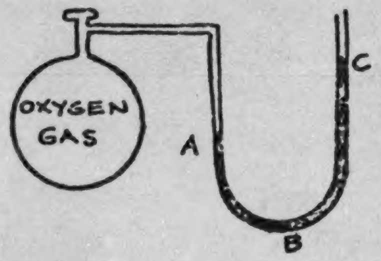
17. A bit of blue ink quietly dropped into a flask of standing water will eventually spread until all of the liquid is light blue in color. The principal reason this happens is that:

A. there are cohesive forces among water molecules
B. water pressure increases slightly from the surface of the liquid to the bottom of the flask
C. water has a lower density than ink
D. molecules of water and ink are constantly in motion

18. A gas has a volume of 1200cm^3 when the pressure is 30mm of Hg. What will be its volume at the same temperature if the pressure is increased to 90 mm of Hg?

A. 225cc
B. 400cc
C. 800cc
D. 3600cc

19. Which of the following is true for the system shown?



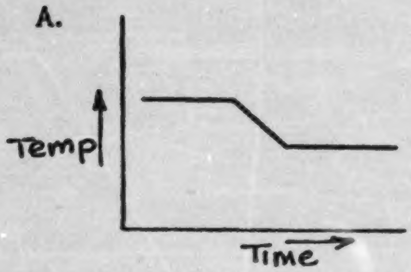
A. The pressure exerted by the oxygen at point A is equal to the pressure exerted by the atmosphere at point C.
B. An increase in the temperature of the enclosed oxygen gas will not alter the position of the mercury in the tube.
C. The mercury levels in the tube will fluctuate slightly from day to day if the system is left undisturbed.
D. The pressure exerted at point B by the oxygen gas and the column of mercury AB is greater than the pressure exerted at point B by the atmosphere and the column of mercury CB.

20. Which of the following statements about temperature are true?

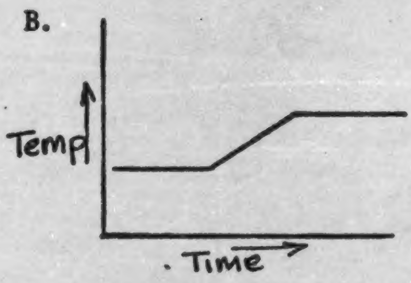
A. the boiling point of water is the same for Centigrade and Farenheit thermometers
B. bodies at the same temperature possess equal quantities of heat energy regardless of size
C. the higher the temperature of gas, the more rapid the motion of its molecules
D. all of the above

21. Which of the following graphs best represents the data obtained when the temperature of an ice-water mixture is taken every minute until the liquid remains at room temperature?

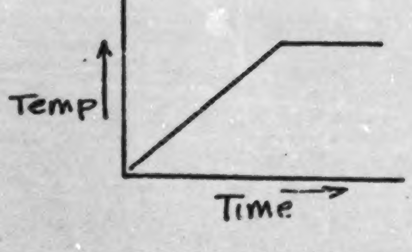
A.



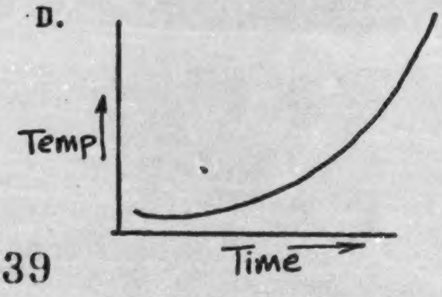
B.



C.



D.



22. The number of calories evolved when 10g of steam is condensed to water and cooled to 50^{o}C is:

A. 5900
B. 5400
C. 5000
D. 500

23. The specific heat of aluminum is 0.214cal/gC^{o}. How many calories would be required to raise the temperature of 200g of aluminum from 20^{o}C to 80^{o}C?

A. 10.7 cal.
B. 42.8 cal.
C. 1.07 X 10^3 cal.
D. 2.57 X 10^3 cal.

24. A four ton boat having a hull displacement of 100ft^3 cruises in sea water of density 64.016/ft^3. The buoyant force exerted on the boat by the water is:

A. 6.4 X 10^3 lbs.
B. 8 X 10^3 lbs.
C. 4 X 10^3 lbs.
D. none of the above

25. On hot days, we sometimes seem to see pools of water on the road ahead when the road is actually dry. The best explanation of this phenomenon is:

A. upward refraction of light by warm air
B. reflection of light from the surface of the road
C. diffraction of light rays obliquely hitting the road
D. reflection of light by dust and other pollutants in the air

26. Two lamps, one having an intensity of 20 candles and one having unknown, intensity are placed on a photometer. Both sides of the indicator are equally luminated when the distance to the 20 candle source is 1/2 the distance to the unknown. The intensity of the unknown source is:

A. 5 candles
B. 10 candles
C. 40 candles
D. 80 candles

If one needed a mirror which would produce a wide angle, reduced, erect image he should choose as:

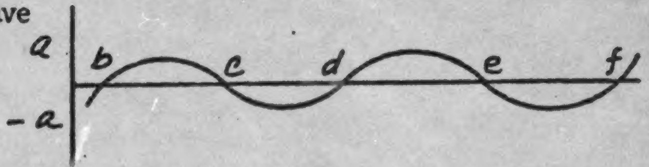
A. plane mirror
B. concave mirror of small aperature
C. concave mirror of large aperature
D. convex mirror

28. Which of the following do we see primarily due to reflected light?

A. the moon
B. the planets
C. other humans
D. all of the above

29. Which of the following is NOT true of the wave pattern shown?

A. the pattern represents a transverse wave
B. the pattern represents a sound wave
C. λ = bd
D. the amplitude = a



30. If an object is placed 15cm from a converging lens the focal length of which is 10cm, the image will be:

A. virtual and enlarged
B. real and reduced
C. enlarged and inverted
D. none of the above

31. An object 5,0cm tall is placed 20cm from a converging lens. A real image is formed 10cm from the lens. The focal length of the lens is:

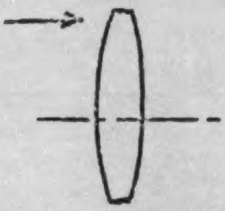
A. 0.15cm
B. 2.25cm
C. 6.67cm
D. 15.00cm

32. The frequency of visible lights is less than that of:

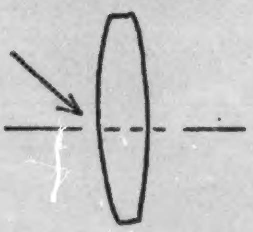
A. infared rays
B. x-rays
C. cosmic rays
D. untraviolet rays

33. Which ray of light will NOT be noticeably refracted by the convex lens?

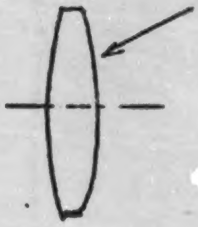
A.



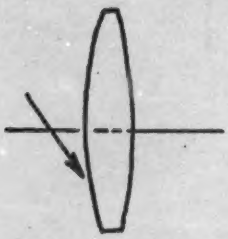
B.



C.



D.



34. Which of the following is most likely to be true of a nearsighted individual?

A. the image is formed in front of the retina
B. the eyeball is too short
C. the lens is too flat
D. the eye muscles are weak

35. A convex mirror with focal length of 15 will produce a real, inverted image if:

A. the object is placed 30cm in front of the mirror
B. the object is placed 20cm in front of the mirror
C. the object is placed 15cm in front of the mirror
D. none of the above

36. The amount of diffusion of a beam of light striking a surface is determined mainly by:

A. the frequency of the light
B. the regularity of the surface
C. the color of the surface
D. the index of refraction of the surface

37. Which properties are NOT common to both sound and light?

A. reflection at the surface of a medium
B. interference where two waves are superimposed
C. greater speed in a vacuum than in air
D. rectilinear propagation within a uniform medium

38. Motion of a source of sound toward a listener causes the pitch of the sound to:

A. become lower because the number of vibrations per second reaching the listener is greater than the number actually produced.
B. become higher because each successive vibration has a shorter distance to travel to the listener causing the vibrations to arrive more frequently
C. become higher because the intensity of sound increases as the distance to the source decreases
D. become lower due to destructive interference as waves arrive out of phase

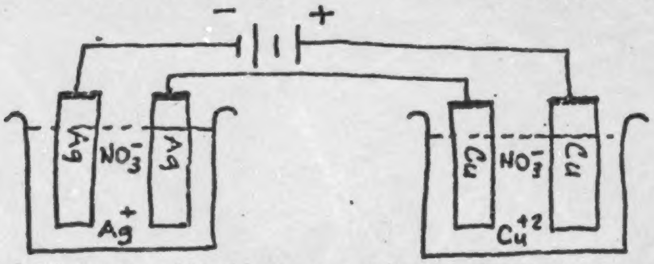
39. Conditions are favorable for resonance to occur if:

A. the natural vibration rates of two objects are the same
B. waves are reflected so that a compression of a reflected wave unites with a rarefaction of a direct wave
C. two waves have the same wavelength
D. two waves have the same amplitude and intensity

40. Which of the following best describes an electric field?

A. A region in space in which an electric force acts on a charged object brought into the space.
B. A set of lines drawn to show the direction a positively charged body will move if brought close to an object having a residual negative charge
C. A region of uniform electrical potential surrounding a charged body.
D. A set of lines drawn to show the direction a positively charged body will move when brought close to an object having a residual positive charge.

Questions 41 and 42 will be based upon the following diagram:



41. Which of the following will be true, if the electrical energy supplied is sufficient to cause oxidation and reduction?

A. The number of silver and copper ions in solution will decrease.
B. Silver and copper atoms will gain electrons as they go into solution.
C. Copper and silver will plate out at the positive electrodes.
D. The same quantity of charge will pass through each cell.

42. Which of the following will be true of the copper and silver plated out?

A. The number of silver atoms plated out will be twice the number of copper atoms plated out.
B. The number of silver atoms plated out will be equal to the number of copper atoms plated
C. The weight of silver plated out will be equal to the weight of copper plated out.
D. The weight of copper plated out will be twice the weight of the silver plated out.

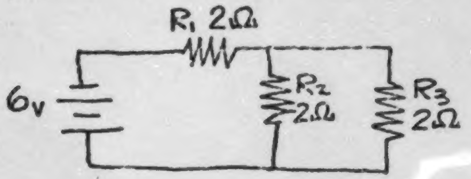
43. When a negatively charged rod is brought close to the knob of an uncharged electoscope the leaves diverge because:

A. both leaves become positively charged
B. protons move toward the knob giving both leaves a negative charge
C. electrons are repelled from the knob giving both leaves a negative charge
D. none of the above

44. A material strongly attracted by magnets and having high permeability is said to be:

A. diamagnetic
B. paramagnetic
C. ferromagnetic
D. magnetic

45. What is the total resistance of the circuit pictured below?



A. 6 ohm
B. 4 ohm
C. 3 ohm
D. 2 ohm

46. What is the current through R_2 above?

A. 3.0 amp
B. 2.0 amp
C. 1.0 amp
D. 0.5 amp

47. The resistance of a metallic conductor increases as:

A. the temperature of the conductor increases
B. the length of the conductor increases
C. the cross sectional area of the wire decreases
D. all of the above

48. The capacitance of a capacitor may be increased by:

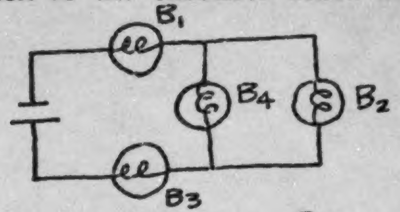
A. decreasing the size of the plates
B. placing a material having a higher electric constant between the plates
C. increasing the potential difference across the plates
D. increasing the distance between the plates

Four light bulbs are arran[illegible]n a network with a source of emg. By unscrewing one bulb at a time and obs[illegible]g the results it is possible to diagram the circuit.

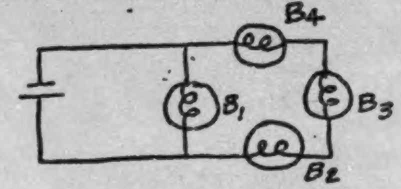
Bulb 1	Bulb 2	Bulb 3	Bulb 4
unscrewed	out	out	out
lighted	unscrewed	lighted	lighted
lighted	lighted	unscrewed	out
lighted	lighted	out	unscrewed

49. Which of the circuits below is consistent with the data?

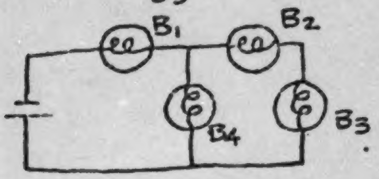
A.



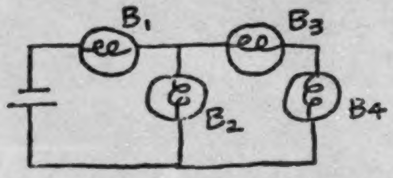
B.



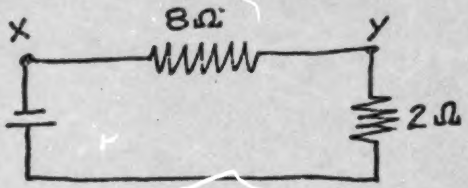
C.



D.



Questions 50 and 51 are based on the following circuit. The current through the 8ohm resistor is .5 amp. Assume that the resistance of the wire if negligible.



50. What is the emf applied to the current?

A. 1.5v
B. 3v
C. 5v
D. 20v

51 What is the power expended between circuit points X and Y?

A. 2w
B. 4w
C. 40w
D. none of the above

52. In a house circuit, use of an excessive number of appliances causes a fuse to blow because:

A. increasing the number of appliances on the same circuit increases the current through the fuse
B. increasing the number of appliances on the same circuit increases the voltage across the fuse
C. increasing the number of appliances increases the equivalent resistance of the group of appliances
D. increasing the number of appliances on the same circuit increases the amount of heat produced by each appliance

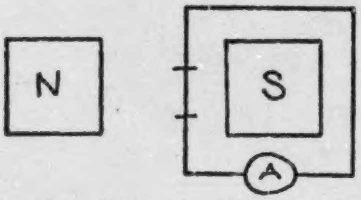
53. Materials that can be strongly magnetized are composed of atoms having:

A. the ability to easily move in relation to one another
B. several unpaired electrons in inner shells
C. complete inner and outer electron shells
D. a greater number of electrons than protons

54. Which of the following characteristics best accounts for the high electrical conductivity of metals?

A. Metals consist of long chains of linked atoms which form a pathway for electrical current.
B. The outer electrons of metal atoms are very loosely held and can easily move from one part of the material to another.
C. Metals are very dense, having atoms, packed tightly together. Because of the short distances between atoms electrons introduced from a source can easily be transferred from atom to atom
D. The atoms of metals are arranged so that there are relatively large spaces between atoms. The spaces allow electric current to flow between the atoms much as water flows through a vertical tube containing course gravel.

55. If a wire forming part of a circuit is moved between the poles of a magnet (viewed from above)



A. electrons will flow clockwise as the wire is moved upward through the field
B. horizontal movement of the wire between the poles will result in a zero or near zero ammeter reading
C. the direct current produced by moving the wire up and down could be used to do work in the external circuit
D. the emf induced will be independent of the rate of vertical movement of the wire

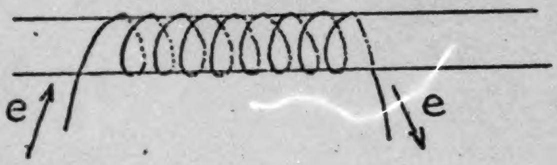
56. The general principals illustrated by the motion of the wire in question 55 are put to practical use in:

A. electric motors
B. capacitors
C. electric generators
D. transformers

57. The primary voltage leading to a transformer is 2000v. If the turns ratio of the secondary winding to the primary winding is 10, the secondary voltage is:

A. 2×10^{-1}v
B. 2v
C. 200v
D. 2×10^{4}v

Items 58 and 59 are based on the following diagram



58. The strength of the solenoid as an electromagnet could be increased by:

A. increasing the number of coils
B. increasing the current
C. using a core with higher permeability
D. all of the above

59. In which direction will the North Pole of the electromagnet be found?

A. at the left as the solenoid is drawn
B. above as drawn above
C. at the right as drawn above
D. below as drawn above.

60. To keep losses low electrical power is generally transmitted long distances at:

A. high voltage and large current
B. high voltage and low current
C. low voltage and large current
D. low voltage and low current

CAREER TEST

FIRESTONE

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary health program. Through these experiences you have met a variety of health professionals. List the occupational titles of the professionals with whom you spent at least one (1) hour. Examples: public health nurse, laboratory technician, etc.

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.

Ten or More Hours of Meeting Time	Less Than Ten Hours of Meeting Time

3. Read the four statements below and circle the one which best describes your feelings about a health career at the time you decided to enter the pre-postsecondary health program.

   A. I had identified a particular health occupation as a fairly definite goal
   B. I had a definite interest in a health career, but was undecided what occupation to consider
   C. I thought I might be interested in a health career and wanted to learn more about the health field
   D. I wasn't particularly interested in a health career, but several other features of the program were attrative to me

4. Respond to question 4 ONLY if you selected STATEMENT "A" in the last item. The occupation I had in mind as I began the program was ______________________________.

5. Read the next four statements and circle the one that best applies to your AT THIS TIME.

   A. I have identified a particular health occupation as a fairly definite goal.
   B. I have a definite interest in a health career but I am still undecided which occupation to select as a goal
   C. I am still considering a health occupation, but I am also interested in several careers that are not health related
   D. I am not seriously considering a health career

Respond to question 6 a, b, c ONLY if you selected STATEMENT "A" in item 5

6a. The occupation I have identified is ______________________.

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

____

____

____

____

____

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

Answer question 7 a, b ONLY if you selected STATEMENTS "B" or "C" in item 6

7a. Which health occupations are you considering?

7b. Choose ONE of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

8. Read the following statements and circle the one which best describes how your interest in a health career has changed while you have been in the program.

A. My interest in a health career has increased
B. My interest in a health career has remained about the sam
C. My interest in a health career has decreased

Answer the following open-ended questions as completely as possible.

9. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of health careers.

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in health? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a health career. Describe some of these topics or activities and explain how they have affected your understanding of health career.

STUDENT ANSWERS TO THE FIRESTONE CAREER TEST

1. Carefully recall the field trips you have taken and the guest speakers you have heard during the course of the pre-post-secondary health program. Through these experiences you have met a variety of health professionals. List the occupational titles of the professionals with whom you spent at least one (1) hour. Examples: public health nurse, laboratory technician, etc.

Osteopaths, psychologist, nurses, Akron U. advisor, hospital residents, psychiatrists, lab technicians, veterinarians, medical students

Psychiatrists, psychologist, registered nurse, obstetrician, intern, osteopath, general practitioner, resident, P.T. and O.T.

Public health nurse, laboratory technician, veterinarian, registered nurse, X-ray technician, student nurses, dentist's assistant, physical therapist, dentist, psychiatrist, family doctor (general practitioner), nurse's aide

Nurse, laboratory technician, X-ray technician, physical therapist, occupational therapist, obstetrician, psychiatrist, orthopedic, urology, dentist, neuroligist, person who works with the mentally retarded

Dentist, physician, nurse, veterinarian, psychologist, obstetrician, physical therapist, dental lab technician, orthopedic surgeon, pollution control engineer, podiatrist

Public health nurse, laboratory technician, obstetrician, dentist, general practitioner, pathologist, radiologist, physical therapists

Neurologist, X-ray technician, osteopath, surgeon, physical therapist, teacher of mentally retarded, lab technician, public health nurse, registered nurse, urologist, dentist, nurse's aide

Dentist, gynecologist, anesthesiologist, E.N.T., chiropractor, osteopath, urologist

Opthamologist, Eyes Ears and Nose Specialist, Osteopath, Optometrist, Dental Technician, General Physician, Physical Therapists

Nurse, podiatrist, doctor, radiologist, dentist, orthopedic surgeon, dermatologist, osteopath, physical therapist, psychologist

Dentist, osteopath, psychologist, lab technician, social worker, nurses (hospital), veterinarian, podiatrist, public relations personnel (hospital), general practitioners, people that make and fit orthopedic braces, interns, residents, medical students, medical advisor (Akron U.), speech and hearing clinic--audiologists, physical therapists, occupational therapist, cardiologist, X-ray technician

Dentist, osteopath, psychologist, psychiatrist, lab technician, X-ray technician, social worker, nurses (hospital), veterinarian, podiatrist, pediatrician, orthopedic surgeon, coroner, interns, medical students, residents, medical advisor (Akron U.), speech and hearing clinic

Nurse, orderlies, pediatrician, gynecologist, podiatrist, veterinarian, internist, family practitioner, lab technician, radiologist, osteopath, dentist, opthamologist, orthopedic surgeon

2. Because the field activities were individually planned according to your interests, you probably did not spend the same amount of time meeting with professionals from each of the various occupations. Arrange the occupational titles you have listed above into two columns to indicate the amount of time spent with each type of professional.

Ten or More Hours of Meeting Time

Osteopaths

Social Worker from Children's Hospital

Veterinarian

Nurse, physical therapist, laboratory technician, X-ray technician

(no comment)

Obstetrician

Neurologist, special education teacher, nurse's aide

(no comment)

(no comment)

(no comment)

Osteopath, social worker, nurses, veterinarian

2. Ten or More Hours of Meeting Time (cont.)

Orthopedic surgeon, nurses

Nurses, orderlies, pediatrician, dentist, internist

Less Than Ten Hours of Meeting Time

All others (psychologist, nurses, Akron U. advisor, hospital residents, lab technicians, veterinarians, medical students)

All of the above (psychiatrists, psychologist, registered nurse, intern, osteopath, general practitioner, resident, P.T. and O.T.)

Dentist, registered nurse, physical therapist, laboratory technician, practical doctor

Orthopedic, dentist, occupational therapist, urology

Dentist, orthopedic surgeon, physician

Dentist, general practitioner, pathologist, radiologist, physical therapists

All others listed (X-ray technician, osteopath, surgeon, physical therapist, lab technician, public health nurse, registered nurse, urologist, dentist)

All in this category (dentist, gynecologist, anesthesiologist, E.N.T., chiropractor, osteopath, urologist)

Opthamologist, Eyes Ears and Nose Specialist, osteopath, optometrist, dental technician, general physician, physical therapists

All come under this category (nurse, podiatrist, doctor, radiologist, dentist, orthopedic surgeon, dermatologist, osteopath, physical therapist, psychologist)

Dentist, psychologist, lab technician, pediatrician, public relations personnel, general practitioner, orthopedic brace people, interns, residents, medical student, medical advisor, audiologist

All others (dentist, osteopaths, psychologists, psychiatrist, lab technicians, X-ray technician, social worker, veterinarian, pediatrician, podiatrist, coroner, interns, medical students, residents, medical advisor from Akron U., speech and hearing clinic)

Gynecologist, podiatrist, veterinarian, family practitioner, lab technician, radiologist, osteopaths, opthamologist, orthopedic surgeon

6a. The occupation I have identified as a fairly definite goal is:

(no comment)

Nursing

Veterinarian

Nurse

Dentistry

(no comment)

M. D. or medical research

General practitioner

Doctor

Physician

(no comment)

Public health

(no comment)

6b. After graduation from high school, what training will be necessary before you are able to enter this occupation?

(no comment)

Four years of college--first 2 years taking general university courses and then applying for the School of Nursing for the last 2 years.

Bachelor's degree in Arts and Sciences (2 years) then 4-5 years college veterinarian school.

I'm entering Akron U. I'll need four years before I can get my degree. Also there is much practical training along with the book learning.

Pre-dentistry, Dental School, specialization in dental school

(no comment)

Four years undergraduate pre-med training, 4 years med school, internship and/or residency. Special training if I go into a specialty, such as neurology or research such as in genetics.

3-4 years pre-med, 4 years med school

3-4 years of pre-med, med school, internship and residency

6b. (cont.)

2-4 years college, 3-4 years medical school, internship, residency

(no comment)

Bachelor's degree and master's if I want it.

(no comment)

6c. Name three institutions that offer programs suitable for the phase of your training which will immediately follow high school.

(no comment)

Akron U., Kent State U., and Ohio State

Davis University (California), University of the Philippines, Tuskegee (Alabama)

A hospital program (3 years), college program (4 years). Practical nurse (also found in hospitals--2 years)

Case Western Reserve University, Tufts University, Miami University

(no comment)

Any college or university which offers pre-med curriculum. University of Akron

Yeshiva U., Akron U., Case

Akron U., Kent State

Case Western Reserve University, Northwestern University, Rensselaer Polytechnic Institute

(no comment)

Indiana U., U. of Michigan, Ohio State

(no comment)

7a. If you have not made a definite career choice, which health occupations are you considering?

(no comment)

(no comment)

7a. (cont.)

Veterinarian

(no comment)

(no comment)

(no comment)

(no comment)

Family Doctor

(no comment)

(no comment)

Public health worker (maybe in educating the public), social worker

(no comment)

Pediatrician, obstetrician

7b. Choose ONE of these occupations and describe the post-secondary training that would be necessary before you could enter this occupation.

(no comment)

(no comment)

Bachelor's degree in Arts and Sciences (2 years) then 4-5 years of college veterinarian school.

(no comment)

(no comment)

(no comment)

(no comment)

3-4 years pre-med, 4 years med school

(no comment)

(no comment)

Social work--often there are courses and programs that you can take in a university. Best to get a Master's degree. Actual case work (like student teaching).

7b. (cont.)

(no comment)

Four years undergraduate work, medical school, residency at a hospital

9. How did your contact with practicing health professionals contribute to an increased/constant/decreased interest in pursuing a health career? As you formulate your answer, keep in mind specific experiences you have had during the program that have helped you learn about occupational activities, training requirements, occupational satisfactions, occupational disadvantages, salary, and other important considerations. Describe a few of the most important of these experiences and explain how they have affected your understanding of health careers.

If I do decide to choose a health career, I will probably choose to be an anesthesiologist, I had a good experience with Dr. Ellis at Children's Hospital and he was extremely helpful in his description of the career and its specifics. Dr. Ellis was helpful in many ways because he was very willing to cooperate with me and a few classmates. Dr. Ellis showed us many movies and made it possible for us to take a tour of the operating room and the role the anesthesiologist plays. Dr. Ellis described his experiences and all the advantages and disadvantages of this occupation. With this occupation having been described the way it was has interested me very much and I am now very interested in this health career.

At the beginning of the program, I wanted to explore the field of physical therapy. After talking to many physical therapists I was greatly discouraged from this health career. One day, because of having nothing else to do, I went to Children's Hospital and followed a student nurse around. I became interested in nursing and talked to the Director of Nursing Education at Children's. I found out many different aspects of nursing and the different types of nursing schools. I have decided on a 4-year school and getting my Bachelor of Science degree in Nursing. This seems to be the best for getting a higher paying job and more variety of jobs. A degree will also enable me for a teaching job although at this time I do not want or plan to go into teaching. I now go down to Children's on Friday afternoons as a volunteer working with the Social Service department.

The training requirement which consists of seven years of college to become a veterinarian is discouraging; because a human doctor can be qualified in 4 years, half the time it takes a vet. But also, a vet has to study many more different animals and they are not the same, as for the human doctor only one body to study the human body. The salary of the

9. (cont.)

average vet compared to a human doctor is much lower; and the vet spends twice the time in college than the human. The starting pay for a vet working under the government is $13,000 a year, while the human doctor's starting pay is $18,000-$20,000 a year. Important considerations to be taken into account are that a doctor can work in a hospital until he has established patients and the equipment needed--but the vet starts practice usually straight out of college, BROKE. No equipment or patients like in a large hospital. Must work hard and have good low prices to become known so people will bring their pets to you.

Before I entered this program I wasn't sure if I wanted to be a nurse or physical therapist. Through the contact I had with the different health professionals, I was able to make my decision. I spent much time with different physical therapists and nurses throughout the two years. The reason for my decision was that I found there was a lot more different opportunities that I would like to take advantage of. You don't have to just stick to nursing, you can specialize and go into psychiatric or orthopedic. You also don't have to stay in a hospital setting, there are public nurses, who make house calls. You also can work in a doctor's office. There are more opportunities to go into other things.

I was interested in a professional career somehow related to medicine. I chose dentistry because it offers financial security while it doesn't restrict one's personal life to any great extent. I was not interested in a career that could create great emotional stress or one that would take more than eight to ten years of school following high school.

Meeting people in the health field, and seeing how much they enjoyed their work has influenced my choice of this field very much. I would like financial security and from statistics we have received, I know that almost all doctors are financially secure. What really makes me enjoy the field is that you are helping living creatures, which I enjoy. One of the most thrilling moments of my life was when I was able to observe a baby being born. Two friends and I were allowed to "suit-up" and watch a Caesarian section from about 6 feet away. I really enjoyed it, and so did my friends. This was one thing which really made me interested in the health field.

As in any decision, increased understanding of health careers contributes to a more conscientious decision. Even if viewing different health careers has not helped one make a definite decision, it has helped me decide which careers I would not like to get involved with. There is an amount of financial security in being a physician, even if Senator Kennedy's proposed bill gets passed. It is also a career in which new advances are constantly being made, making it a demanding profession.

9. (cont.)

The best experience I had was the beginning of the first year when I was in the operating room observing an oophorectomy. This eliminated my fear that I might get sick of the sight of blood. In fact, I found it to be a delightful experience. Since then, I was determined to be a doctor.

(no comment)

My interest in becoming a doctor increased. I got more exposure to the field of medicine through talking with doctors in various fields. I learned a bit more about just how stiff the competition to get into medical school was. After talking with these doctors, I became more convinced that I would like to be a doctor. The program did not succeed in changing many of the ideas I had but merely served to enforce them.

I have had the opportunity to watch several public health officials. This has increased my knowledge of this field. I worked with some social workers for a few weeks and it helped to stimulate my interests further. I have a clearer idea of requirements, etc. that it takes to be a public health worker.

Stayed constant. My field has switched due to an understanding of the competition of medical school from various people in the medical careers.

(no comment)

10. In what ways have classroom or laboratory based learnings influenced your interest in a future career in health? As you answer, keep in mind specific classroom or laboratory topics and activities that helped you determine whether you should pursue a health career. Describe some of these topics or activities and explain how they have affected your understanding of health careers.

As our class has progressed, we have really learned very little about the health careers. The only beneficial aspect of the pre-postsecondary program, as far as influencing the health career idea, has been the field trips when we associated with the practicing professionals. The class laboratories and class learnings have affected me very little as far as determining a future in a health career. I don't have any suggestions as to how to make the classroom work more realistic for us but I feel the classroom work has not been very beneficial as to making up my mind. Mr. Sappenfield has tried very hard to make the year productive and I must say the year has been more productive than last year. This year's biology has been more closely related to the health career aspect but it still isn't closely related.

10. (cont.)

Science courses, especially biology, have always been very interesting to me. I started working on my own an experiment with blood. I did a little blood typing and blood smears. Working with blood was especially interesting. Parisitology and immunology were the two most interesting subjects in biology. They gave me a better understanding of diseases.

Classroom and laboratory studies that have helped me were dissection of large animals; so that I became used to the sight of seeing such animals cut up. Such as possums, raccoons, cats, and frogs. Being able to cut into live frogs has made me sure that I would be able to stand the blood and gut courses I will have to take in medical school. Also, learning the parts of the anatomy such as the skeleton, muscles, circulatory system and nerves will give me a preview of what I will have to learn in medical school.

It seems that the Biology helped much more than the Chemistry did. It could be because in Biology we all were able to go in depth, but in Chemistry we did not. When we go to the hospital we aren't able to understand the Chemistry because it is too far advanced for us. The biology has been very helpful. The ones that I have found to be most helpful were the dissection of the cat, the parasites section, and bacteriology.

Some of our classroom activities such as anatomy, have influenced my interest in a health career. I am interested in sports and the course on anatomy made it easier to understand some of the physiology of the human body. We have started some individual projects dealing with various medically-related subjects that have also created more interest in health career programs. I started a project on the physiological effects of long distance running on humans, which didn't work but I am now working on one dealing with the effects of using desiccated liver tablets as a nutritional supplement.

The only real connection to the medical field which we had in class was speakers. Speakers usually filled us in on the statistics and requirements of the medical occupations. It was the classroom experiences with animals, insects, and bacteria which raised my interest in the health field. I found out that I liked working with animals and living things. It was the anatomy in the class which made me feel I would enjoy the health field.

There are very few things which are done in the classroom that relate to deciding about the medical career. The only situation where this question is applicable is biology exercises in bacteriology, anatomy and immunology. The other courses involved in the program, math, chemistry, and physics are hard to tie into medicine.

10. (cont.)

(no comment)

(no comment)

The only subjects that have had any effect on my health career choice have been chemistry and biology. These are two fields I am interested in and will probably select one or the other for my college major. Biology and to some extent chemistry have given me a much better understanding of how the human being works. This classroom learning did not have a tremendous effect on my decision to enter the health fields.

I have enjoyed biology this year, and the many things that we did. It helped me to maintain an interest in a health career. I know now that I don't want to be a physician. Biology has helped me to determine this. We have done many things, such as bacteriology, physiology, microbiology and cat anatomy. These things have shown me the things that I am good in and enjoy doing.

It made me realize that being a physician was not for me. After hearing admissions people, residents and doctors and understanding what it entailed, I came to this conclusion. The program helped me to explore many different divisions in the medical field. I considered orthopedics, but after watching an orthopedic surgeon I decided against it. The program helped me to gain insight into different fields and to finally choose Public Health.

(no comment)

APPENDIX Z

Priority

This project was conducted to meet the needs expressed in priority 5 of the 1972 Plan and priority M of the 1973 Plan. The Career Development Program in Ohio is designed to help youth make wise career choices in grades K through 10 and receive specialized training in the chosen career field in grades 11 and 12. Those young people choosing a career which requires a traditional college preparatory program in the 11th and 12th grades or one of the vocational education programs within the career fields selected. Ohio developed pre-postsecondary curriculums in four areas--business administration, health, engineering, and social science as an option for these young people.

The program was implemented on a pilot basis in four school districts during the fiscal year 1974. These school districts were Great Oaks Joint Vocational School District, Springfield-Clark County Joint Vocational School, Penta County Joint Vocational School, and Akron City Schools.

The Pre-Postsecondary Program offers a block time approach similar to that used in vocational education and focuses on the individual's career goal rather than on subject content. The teachers for these pilot programs needed training to be able to implement the Pre-Postsecondary Program concept.

Project Results

This project was developed to support the Pre-Postsecondary Education Project paid for out of Part C funds through the Division of Vocational Education, Ohio State Department of Education. The objective of the main project was to

> ...implement two-year instructional programs which would provide 22.5 hours per week of pre-postsecondary instruction in the fields of engineering, health, social science, and business administration occupations for high school students in grades 11 and 12 which would be compatible with high school graduation and which would increase the self-awareness of each student: develop in each student favorable attitudes about the personal, social, and economic significance of work; assist each student in developing and practicing appropriate career decision-making skills; which would provide job preparation in a wide variety of occupational areas with special emphasis on the utilization of work experience and cooperative education opportunities for all students, and which would insure the placement of all exciting students in a post-secondary occupational program or a baccalaureate program.

There were to be ten programs started throughout the state in September of 1973 for juniors, and these programs were to take these students through their senior year. Because of the lateness of the main contract being awarded, the programs did not start in September. Instead, four programs started in November and four programs started in February. These late starts did affect the teacher-education project in several ways as will be noted in this report.

The evaluation of this project was carried out by the Bureau of Educational Research and Services at Kent State University as part of their evaluation of the total Pre-Postsecondary Project. Reference to this document will be made often in this report and will be indicated by the page number being put in parenthesis at the end of a sentence. A copy of this evaluation is included in appendix I. This section on project results will be divided into two parts. The first will deal with objectives I, II, and III. The second part will deal with objectives IV and V.

I

The first three objectives of this project were as follows:

1. to introduce selected teachers to this pre-postsecondary program,
2. to enable teachers to understand, appreciate, and use blocked time instructional techniques for use with the pre-postsecondary curriculum,
3. to enable teachers to plan and implement a student goal-centered pre-postsecondary program, utilizing the curriculum guides prepared for business administration, health, engineering, and social science career areas.

One of the serious weaknesses of the program in the minds of the participants and the evaluators was the lack of specific guidelines from the state department for the Pre-Postsecondary Program (pp. 19 and 22). Because of this lack, the Project Director and the Coordinator of Teacher-Education for the teacher education project outlined what, in their opinion, were the essential components of a Pre-Postsecondary Program. These components are as follows:

1. The students were to be in the program for a block of time that averaged 22.5 hours a week.
2. Hands-on learning experiences were to be conducted that simulated the work that a person does in the occupations the students are working toward.
3. The students' work was to be individualized.
4. Two or more academic subjects were to be integrated with the simulated learning experiences.
5. The students were to be receiving career and college guidance.
6. Field experiences were to take place in which the students either visited or worked in places where people work who are in the student's proposed occupation.

These six items are the basis on which the success of the first three objectives will be determined.

Because of the lateness of starting the programs and the lateness of identifying staff members, the plan for introducing teachers to the Pre-Postsecondary Project as described in the proposal was modified. Instead, there were workshops at Atwood Lodge on October 18 and 19, 1973, and at Hospitality Inn in Columbus, Ohio, on February 21st, 22nd, and 23rd, 1974. The main purpose of these workshops was to introduce teachers to the Pre-Postsecondary concept.

The October workshop began with Dr. Byrl Shoemaker, Director of the Division of Vocational Education for the State of Ohio, introducing the teachers to the history and philosophy of the Pre-Postsecondary Program. Dr. Charles Nichols, Chairman of the Vocational Education Department at Kent State University, talked to the teachers about the principles and practices of Career Education, and curriculum development for the Pre-Postsecondary Program. The participants then worked on developing curriculum for their classes with the help of Dr. Nichols. Mr. Robert Balthaser and Mr. Gerry Stavney also made short presentations on the specifics of the grant and the teacher-education component. A copy of the program for this workshop is inlcuded in Appendix II.

The second workshop was conducted February 21-23, 1974, at the Hospitality Inn in Columbus, Ohio. The main purpose of this workshop was to assist the teachers in developing activities that simulated the work of people in the career areas of interest to the students. Resource people knowledgeable of the career areas were brought in to help the participants develop activities and the bulk of the time was spent doing this. There was also time spent in this workshop discussing the proposed evaluation and listening Dr. Byrl Shoemaker further elaborate on the Pre-Postsecondary concept. A program for this workshop is included in Appendix II.

Teachers were also introduced to the Pre-Postsecondary Program as they were hired. This was done individually or in groups, and video tapes taken at the first workshop of Dr. Shoemaker and Dr. Nichols were used several times. The regular visitations of the teacher-educator were also used to introduce the program.

A third teacher-education workshop was held at Lincoln Lodge in Columbus, Ohio. The purpose of this workshop was not to introduce the teachers to the program but to assist teachers in developing skills that were compatible with the program. The topics at this meeting were behavioral objectives, questioning strategies, and sources for career and college guidance. Materials from Prentice-Hall's teacher competency program developed by W. James Popham and Eva L. Baker, and from Higher Cognitive Questioning developed by the Far West Laboratory for Educational Research and Development were used to assist the teachers with behavioral objectives and questioning strategies. Dr. Charles Weaver from the Ohio State Department of Education spoke to the group on resources that were available to them in helping students make their career and college decisions. The program for this workshop is included in Appendix II.

The means we have chosen to use in evaluating the effectiveness of the previous strategies is to use the evaluation's assessment of the extent to which the Pre-Postsecondary concept was carried out in the classroom. The results are mixed. First, objective number one was fulfilled. All teachers were given an in-depth orientation to the Pre-Postsecondary Program. Each teacher in the program was either at the first workshop, or viewed and discussed tapes of that first workshop with the Coordinator of Teacher-Education. Further, each teacher in the program attended the second workshop. At the time that a teacher was hired by a school district, the every-other week visitation of the Coordinator of Teacher-Education began which also served to introduce the Pre-Postsecondary Program concept. The evaluative instruments given to the participants at the first two workshops also support the success of objective one. (pp. 8-11)

In assessing the success of Objective II, questionnaires sent to the teachers and to the pupils by the Bureau of Educational Research and Services at Kent State University were used. It should be noted that the questionnaire was worded in such a way that the people were to give some indication of how often the particular item took place. Nothing could have a 100% rating. It is impossible to determine an optimal percentage because that would vary with career cluster, school environment, the pupils, the teachers, and other factors. All we can really ask is if the particular component did take place. In all but one of the programs, the students were in the Pre-Postsecondary Program for a block of time. In four of the programs, the students did have a 22.5 hours per week in the program. In fact, in these four cases, the students were really in the program the entire day and all of their teachers were considered to be part of the Pre-Postsecondary Program. In three of the programs, the students were part of the Pre-Postsecondary Program for a block of time, but it was only for fifteen hours per week. The students' questionnaire indicated that they performed activities in the classroom that simulated their career interests 44.78% of the time. The teachers said this occurred 42.50% of the time. Based on the surveys and the field observations of the Coordinator of Teacher-Education, we can conclude that in all but one of the programs activities that simulated the career interest of the students were used. (pp. 28, 31, 33, 136-138, and 157-159).

The questionnaires also indicated that in all but one of the programs the simulated activities were the center around which academic knowledge was taught. The students said this occurred 55.71% of the time, and the teachers said it occurred 70.00% of the time. Obviously, there was much variation between programs, but, in general, we can say that academic knowledge was integrated with the simulated activities. The perceptions of both the students and the teachers was that individualization was also taking place. The students said that this took place 56.04% of the time, and the teachers said this took place 72.50% of the time. Again, there was much variation between programs. All of the programs included visitations in which the students visited places where people were performing the occupations that they were interested in. The students said this occurred 53.33% of the time, and the teachers said 41.67% of the time.

The first part of Objective III is the same as Objective II and the results apply to both objectives. The latter part of Objective III says that the teachers were to utilize the curriculum guides prepared for the program. As is noted in the evaluation, only one program used the guides that were prepared. Further, in the words of the evaluation team, "...this was a wise judgment on the part of the teachers." (p. 45). The evaluation team indicated that the curriculums developed were completely inadequate to achieve the results sought in the Pre-Postsecondary Program. (pp. 3-8)

In summary of the extent to which the first three objectives were achieved, we can say that, in general, they were accomplished. There were exceptions and these can be traced to one of several causes. The first is that, for all people involved in the program, this was a new experience. Also, all of the programs started late. To achieve as much as was done can be considered a real accomplishment given these two drawbacks in timing.

A further difficulty, and one that needs to be elaborated on, was the lack of coordination. In the summer of 1973, money was awarded to four groups to develop curriculums in the four career clusters. At later dates, the teacher-education grant and the grant to the schools were awarded. There appears to be little coordination to these grants. For example, those that produced curriculums appeared to have different conceptions of the program that did those who wrote and received the grants for the schools and for the teacher-education program. As a result, the teacher-education component had no documents to show teachers what they could and should be doing. Another example is that in the grants to the schools no mention is made of the teacher-education component. In most cases, the teacher-education Project Director and Coordinator of Teacher-Education had to tell the local administrators what the teacher-education role was to be. It was up to the local administrator whether to cooperate or not, and if the local administrator did not cooperate, then the teacher made the decision whether to cooperate. Obviously, this factor, coupled with the lack of definitive guidelines, seriously hampered the success of the teacher-education program. It meant that those involved with teacher-education had to be careful about the demands that they made and had to maintain a positive relationship with the teachers in the program. Up to a point, the positive relationship is a factor that persons involved with work of this sort would want to foster, but there is also a point at which demands have to be made to carry out the intended programs.

In the opinion of the writer of this report, the teacher-education component did achieve the first three objectives. Part of this success can be given to those involved in teacher-education, but the greater share of success belongs to teachers who were enthusiastic about the program and receptive to help. It is fortunate that the Pre-Postsecondary Program had the teachers that it did have. They are real agents that caused the teacher-education program to be a success.

II

Objectives IV and V of the project are

4. to have each participant prepare a written instructional program including concepts to be covered, methodology to be used, activities to be used, resource people available, and time constraints for each instructional module,
5. to develop a package of select curriculum materials for each of the career areas in the project.

The hypothesis being tested in objective IV was that the Ohio Vocational Teacher-Education model could be used with the Pre-Postsecondary Program. For those in vocational education who are part of the teacher-education program, the preparation of an instructional program is part of their certification and college requirements. Neither of these factors was part of the Pre-Postsecondary Program teacher-education program. Because of these factors and the large number of hours the teachers in the program were already spending with preparation, contacts for field experiences, and workshops, we chose not to ask the teachers for this material in formal form. Obviously, the teachers did make written lesson plans for their own use.

Work on a package of curriculum materials was started during the summer of 1974 and is continuing through the 1974-1975 school year as part of a continuation of this EPDA project. Four teachers who had been part of the program during the previous year were brought to the Kent State campus for a four week period (June 17th through July 18th) to work on these curriculum guides. Their work will be combined with the work of those during the 1974-1975 year to complete a two year curriculum package for all four career cluster areas.

Impact on Educational Delivery System

Although it is too early to give a definite answer to the question on the impact on the educational delivery system, the experiences of the past year would indicate that it is possible to train teachers to implement a Pre-Postsecondary Program. In the opinion of those working with this project, it is important that these teachers be given training into the implementation of such a program and be given consistant help through the year. It is very easy for teachers to slip back into a more traditional mode, and the help through the year would help alleviate this happening.

As is probably true all educational programs, we have also found that staff selection is crucial to the success of the Pre-Postsecondary Program. The first requirement is that the individual selected needs to have a commitment to the principles and goals of the program. This program also lends itself to the use of a team teaching approach. In order for the program to be successful, the teaching staff needs people who are knolwedgeable about the career areas and knowledgeable about the academic subjects. Since few people have competence in both areas, a team of people who can assist one another with these fields of knowledge would be an asset.

Participants

There were twelve teachers who participated in the program. In all but one case the individuals were experienced teachers from either an academic high school or a technical college. The exception was an individual hired for an engineering program because of his work experience. He had no teaching experience for a baccalaureate degree. The teachers were selected by the school districts.

The Project Director was Dr. Charles Nichols, and the Coordinator of Teacher-Education was Mr. Gerry Stavney. Vitae for both are included in Appendix III.

Materials Developed

Curriculum materials in each of the four career areas are being developed as part of this project and part of the renewal of this project. The final product will be included with the final report of the FY75 project. This was necessary since the program was a two year program, and the FY74 project only included a junior class. The curriculum packages will be a package for the junior and senior years.